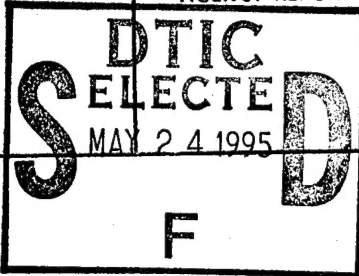
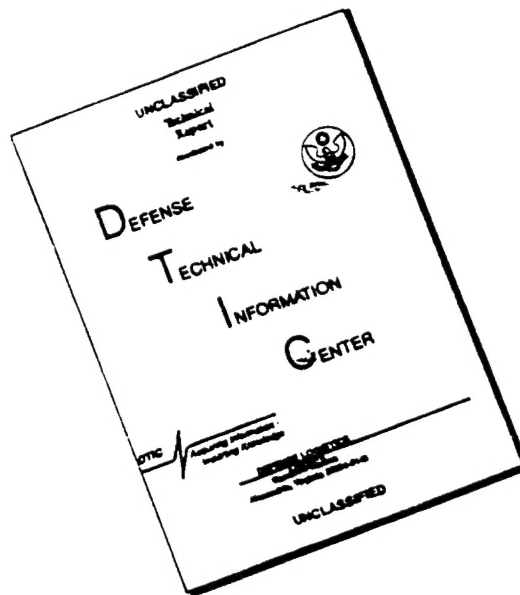


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PROJECT COMPLETION REPORT

FOR

DEPARTMENT OF THE ARMY
CONTRACTING DIVISION
ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO

PREPARED BY
HARRISON WESTERN CORPORATION
DON J. BUTLER
PROJECT ENGINEER
DECEMBER 11, 1985

CONTRACT NUMBER: DAAA05-85-C-0012

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Rocky Mountain Arsenal
Information Center
Commerce City, Colorado

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SECTION I INTRODUCTION

At the beginning of July 1985, the Department of the Army, Contracting Division of the Rocky Mountain Arsenal, Commerce City, Colorado issued specification information under title of "Closure of Hazardous Waste Disposal Facilities at Basin F, Rocky Mountain Arsenal-Non-Personal Services." Solicitation number was DAAA05-85-B-0008. A sealed bid was requested by July 24, 1985 at 1:00 pm with this finally being amended to July 29, 1985 at the same time.

Specifications were presented to Mr. Joseph Gerden, Vice President of Mining Division, by Mr. Paul Trost of MTA Resources, Inc. around the beginning of July, 1985. At the request of Mr. Gerden, Mr. Don Butler, Engineer and Estimator with Harrison Western Corporation, reviewed the specifications and a decision was made to bid on this project.

The bid opening indicated Harrison Western Corporation as low bidder at \$2,761,223.00 from a field of 4 bidders. There were two bidders which were higher and one withdrawal. On August 7, 1985 a third amendment was issued requesting a rebid as the initial figure was above the allotted budget. It was thought that revisions in the bid schedule would allow a contract price to fall within the Rocky Mountain Arsenal (RMA) budget. Harrison Western Corporation responded to the revised schedule on August 14, 1985 with a new contract price of \$1,840,548.00.

On August 30, 1985 Harrison Western Corporation was presented with a signed contract by Ms. Shirley Combs, Contracting Officer of Rocky Mountain Arsenal. A preconstruction conference was conducted at the same time so that all persons connected with the project could be introduced and the Notice to Proceed given. The contract duration was set at 150 days with liquidated damages beyond this time frame. The contractor was to begin within 10 days of Notice to Proceed.

Harrison Western Corporation was moving equipment and erecting site facilities by September 9, 1985. The project was staffed as follows: Paul Trost-Project Manager, Dennis Blanchette-Project Superintendent, Don Butler-Project Engineer, and Dan Johnson-Project Administrator.

Rocky Mountain Arsenal appointed Ms. Mary Curtin as Contract Administrator and Mr. Lloyd Howe as Contracting Officer's Representative.

SECTION II
CONSTRUCTION DESCRIPTION

The project got underway on September 9, 1985 with the mobilization of equipment and materials to the Basin F site. Among the first jobs was to create work zones based on anticipated levels of contamination. The red or "Hot" zone comprised the entire work area and this was surrounded by posts connected by red flagging. Outside of the red zone was a yellow or "buffer" zone where employees followed procedures for lower levels of contamination. A support zone bordered the yellow area and comprised the rest of the site where equipment and employees were considered uncontaminated. The well was excluded from the red and yellow zone at the beginning so as to allow mobilization of equipment into this area without the requirements of respiratory safety apparatus. Inclusion into these zones took place on October 9, 1985.

Due to the complexity of the facility arrangement, and in order to comply with decontamination procedures it took 3 weeks to complete mobilization. Locker, shower, and lunchroom/safety trailers had to be utilized in a specific fashion which required an elaborate system of walkways to connect them.

A boot wash and laundry room complimented the trailer layout and completed the containment of contamination to the site proper. The following figure indicates the layout of contractor facilities at the Basin F site.

Utilities were provided by RMA but hookups were such that a fair amount of work was required to make connections. Power was available from an overhead 13.8 KV line but transformation was not allowed through the RMA substation. New c-lines had to be installed and another substation set up. Additional transformers were installed to reduce voltage to 220 and 110 throughout the site. Water was obtained from the RMA potable water system after appropriate connections were made. PVC lines were laid in trenches to service all the trailers. Drinking water was provided in large plastic bottles by an independent local supplier. An existing telephone line which was broken in many places over 1-1/2 miles was repaired and strung to the contractor's office. This only lasted a few days due to its poor condition and location 5 feet below the 13.8 kv line. Electrical induction from the high voltage line yielded it inoperable. Mountain Bell looked over that section of the Arsenal and located an underground line in the vicinity of the

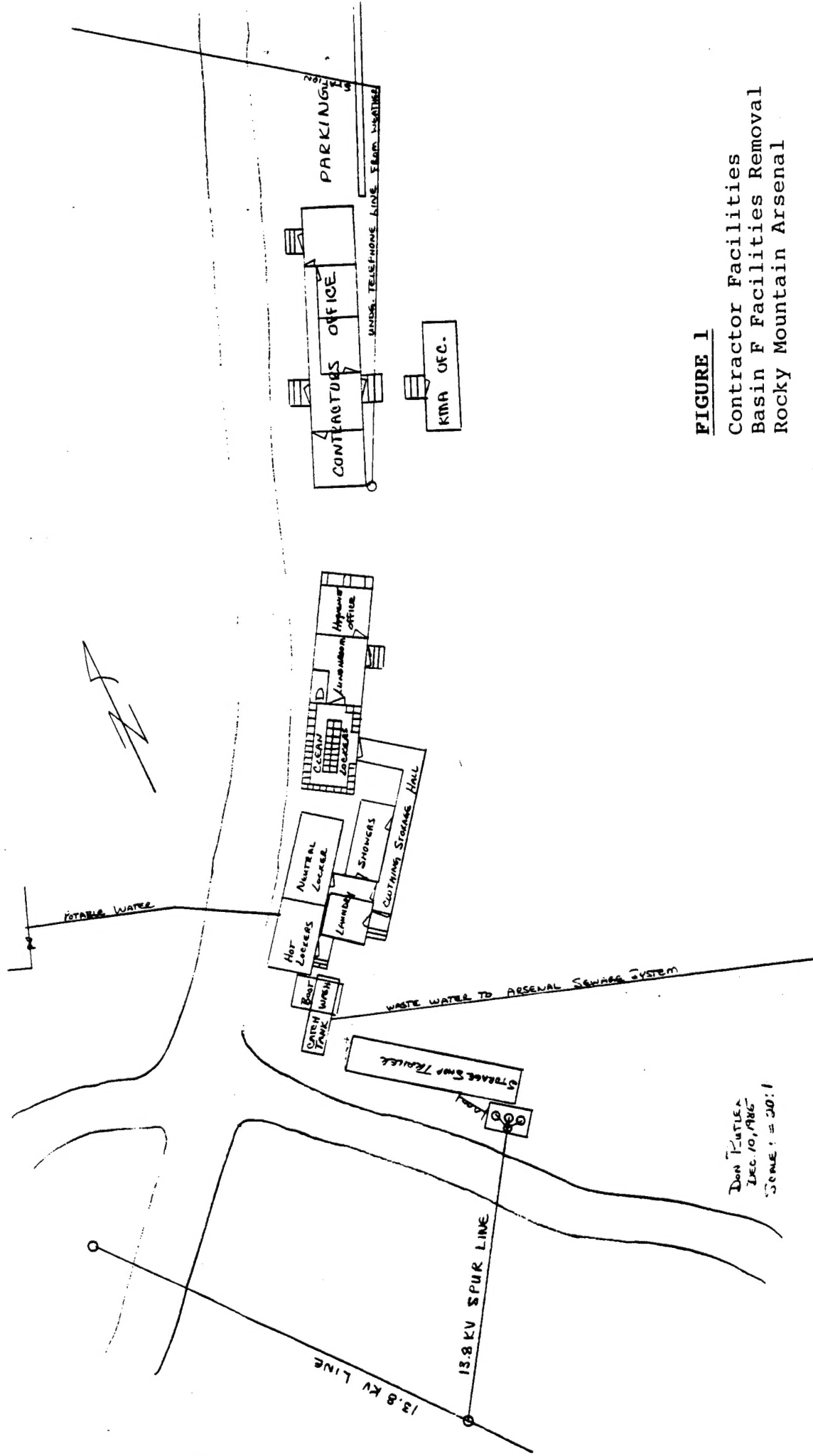


FIGURE 1
 Contractor Facilities
 Basin F Facilities Removal
 Rocky Mountain Arsenal

Don Teutler
 DEC 10, 1986
 SCALE = 3/8" = 1'

Basin F buildings. This line was tapped and laid underground to the weather station junction box. With the weather station inoperable throughout the contract two telephone lines were extended from the junction box to the contractor's office trailer.

Following completion of mobilization and utility connections the actual construction work was about to commence.

A. Surface Facilities

During the first three weeks of the project several small jobs began which would later take an active part in the construction process. In order to provide proper staging and a liquid containment area for the drill rig a 40 foot by 50 foot concrete pad was poured encompassing the wellhead. This pad as well as the sump would be removed later and properly disposed. The equipment washdown facility which existed at the job had to be enlarged to handle the long trucks which needed decontaminating. A 40 foot long by 25 foot wide slab was added to the existing slab and a new drain line installed to prevent liquids from draining into Basin F. The drain line flowed into the first of 3 settling tanks before entering a carbon filtration unit. The outlet of this carbon unit flowed into a pond for recycling use.

On September 30, 1985 after all preliminary work had been completed the site commenced work under "Hot" conditions. This meant that all employees working within the "Hot" or red zone had to be properly attired in protective suits and respirators. These people had to fully decontaminate any time they exited from this zone.

Before any major demolition could begin all contaminated liquids had to be removed from the sumps within or attached to the buildings. One crew of men set up a pump and hoses and began transferring liquids to the main clarifier tank. Because of the size of the clarifier this was used for storage. The transferring of liquids and flushing of these sumps with fresh water took approximately four days. This time may have been reduced if pumps more appropriate to this type of work had been utilized. Since working conditions involved contaminated liquids all men were equipped with continuous air flow breathing apparatus. Movement was restricted somewhat due to the trailing

airline but the increased comfort with this type of respirator more than made up for it.

Several large wooden rafts which had previously floated on Basin F were scattered throughout the site and needed to be disassembled. A four-man crew worked with torches and chainsaws to accomplish this job. Within four days all wood on the site had been cut and piled neatly in preparation for removal. Uncontaminated logs from a truck loadout facility were dug out and removed to a location near the Arsenal Fire Department. This took an additional day.

Three areas were staked out for stockpiling materials which would be produced during the demolition and excavation periods of the contract. One area to the east of the drainage ditch was cleared and plastic laid down for placement of contaminated soils. In the vicinity of building 802 an area was set aside for all metals cleaned up on the site and also an area for placement of all concrete materials. Separation of materials in this fashion allowed us to more accurately calculate volumes of each and hence approximate weights upon which disposal and transportation costs were based.

The rear walls of both buildings 802 and 806 were removed on September 30, 1985 to facilitate removal of all equipment labelled salvageable by RMA or HWC. A mechanical crew disassembled all the multiplex pumps and motors as well as their electrical starters and moved this gear to a location close to the wash down facility. All other miscellaneous salvageable equipment was removed to this location awaiting decontamination cleaning. Within five days both buildings were levelled to their foundations and the construction materials separated into their respective piles. At all times the site was maintained in a safe and orderly condition to minimize the possibility of minor injuries. Large front end loaders and backhoes were utilized to perform this demolition and experienced operators greatly contributed in the accomplishment.

Excavation of pipelines started on October 3, 1985 with the removal of a 73 LF section of pipe A&B between the fence and location Fl. This section was considered contaminated by the COR in order that the Contractor's excavations would not be held up while waiting for a

soil removal decision by RMA. A change in the contract was to be received directing the Contractor not to remove and dispose of 9 cubic feet of soil per lineal feet of pipe as specified. A claim is pending for the removal and disposal of all pipes associated with the soil removal pay item.

On the second day the Caterpillar 225 excavator was moved to the 10 inch diameter clay tile line at manhole No. 2 and began excavation towards manhole No. 3. The same day the BE 325 excavator removed manhole No. 2 and excavated towards manhole No. 1. All material from this pipeline including 9 CF of soil per lineal foot of trench was removed and stockpiled for removal to a hazardous waste landfill. Since all remaining pipes were to be excavated without taking the soil the excavators were more or less turned loose and the majority of this work was completed by October 11, 1985. About 500 feet of pipe remained to be excavated in the area of the well but this would not be completed until the drill rig was removed from the site. Samples of soil were taken along the various trenches and sent for analysis. As the excavations progressed a wheeled loader backfilled and compacted the trenches. A soils testing subcontractor was employed to observe and test the backfilling for the required compaction. The results of these tests are presented in a later section.

Following completion of the pipelines both excavators were moved to the concrete foundation area and began excavation around these structures. A subcontractor's hydraulic breaker started demolition on October 11, 1985 and completed the main structures by October 15, 1985. The subcontractor was released from the site at this time and was recalled again on October 24, 1985 for an additional 3 days work in removing the clarifier, the well sump and drainage pad, and to assist in breaking some of the larger slabs. The slabs were reduced in size to ease handling and assure no damage to haulage trucks from the protruding rebar.

Between October 9, 1985 and October 15, 1985 all salvageable equipment and materials were processed through the decontamination facility. Some equipment was taken apart and later reassembled. All items were steam cleaned using a degreasing chemical soap and then

triple rinsed with a high pressure washer. Once decontaminated all equipment and miscellaneous metal materials were stored in the field bordering the yellow zone awaiting inspection and release by the COR.

With the removal of most facilities complete by October 15, 1985 work now centered around cleaning up the site, organizing stockpiled materials, filling excavation holes, grading the site, and providing backup work for the drill rig and crew. Excess soil piles which were located to the southeast of the washdown facility were moved and used for excavation fill.

On October 23, 1985 the first 10 trucks from U.S. Pollution Control, Inc. arrived and were loaded with solid waste materials. These materials were transported to their Utah hazardous waste landfill site. Solid waste was loaded and removed each day until November 2, 1985. Trucks were not supplied in the numbers quoted by the Subcontractor and thus caused a delay in our schedule. Tankers finally arrived on November 3, 1985 and with a couple a day this work was complete by November 12, 85. These trucks moved liquids from RMA to an Oklahoma HWLF. This portion of the project was exercised extremely well but the reduction of the average number of trucks per day from 18.0 to 5.5 greatly extended this later schedule item.

B. Plugging and Abandonment of Well

This portion of the contract required a quantity of specialized equipment due to the nature of the work and the depth of the well. In order to handle all operations within the well required a rig capable of 12,000 to 15,000 foot depth. Exeter Drilling Company was contracted to provide their rig No. 69 to perform these specialized operations for HWC. The rig was mobilized on site on October 7, 1985 and set-up. Safety training and physicals were conducted the next two days and work was scheduled to start on October 10th.

In preparation for the plugging procedures the mud tanks were filled and mixed and the rat hole drilled. The next step was the preparation of the Blow Out Preventer (BOP) which was speared and hung above the collar works. This would be installed after the 5.5 inch casing slips were unseated. The inside of the 5.5 inch casing was

scraped at the collar, speared, and pulled to 200,000 lbs. in an effort to free the slips. When this initial pull didn't work, the collar at the slip location was heated twice with torches and hammered. A second pull at 210,000 pounds freed the slips and upon increasing this to 225,000 pounds the casing slipped from the packer. At this point the BOP was lowered and installed and hooked up for reverse circulation. Approximately 500 barrels of fresh water was pumped into the annulus with only a partial return which indicated that the 5.5 inch casing was likely plugged with the fish. Circulation pressure started at 400 pounds, was reduced to 200 pounds and finally lowered to 75 pounds.

Because of poor circulation up the 5.5 inch casing it became apparent that this would likely be a "wet-pull" and therefore the crews were suited appropriately. This meant continuous air flow respirators. The first joint of tubing was removed at 6:25 pm on October 11th and the entire string of 9,000 feet was completely removed by 8:15 am on October 13th.

continued
The next step was to mill the packer from its location. The 4.5 inch mill was rigged up and following tripping in the hole the operation started at 9:30 pm on October 14th. About 6 inches of the 3 feet had been milled when the rig was shut down by RMA due to a suspected chemical burn to one of the rig hands. Some 14 hours later work resumed on the milling of the packer. This work was completed without any further interruptions and the packer fished from the well.

Another subcontractor, NL McCullough, had set up their rig by 10:00 pm on October 15th and began a cement bond log of the hole. This was complete by 8:00 am the following morning. A casing inspection log was scheduled next but this could only be completed to the 10,052 foot level. A tight spot was intersected at this level and the special tool wouldn't pass. At this point a decision was made to run a gauge ring tool in conjunction with a junk basket. This ring tool went as far as 11,002 feet into the well and stopped. It was pulled up to 8,900 feet and sent down again before stopping at the same location. During retrieval from the hole 4,700 feet of wire line cable was destroyed when it became ravelled by a split in the casing. This was cut off and discarded.

A decision was made to scrape this section of the casing from 9,000 feet to 11,002 feet and run another inspection log. The log was run with sinker bars to check for bridges in the lower 5.5 inch liner. The stinger was stopped at the 11,916 foot level when a solid bridge was hit and this raised some concern as this was 129 feet short of the supposed hole bottom. After tripping out of the hole a 4.5 inch bit with jars on 2-7/8 inch tubing was assembled and proceeded to run to the bottom. Some junk in the hole was intercepted at 11,914 feet and chased down the hole to 11,938 feet where it lodged. Bad torque in the drill string was recorded when the bit made contact with this bridge so the entire string was retrieved and the 4.5 inch bit replaced with a 4.25 inch flat bottom milling tool. After reaching this level of the well again the junk was milled and pushed down the hole to the 11,982 foot level. This point was 7 feet below the bottom of the lower 5.5 inch casing so once the junk reached 11,975 feet it fell to the bottom. The drill string was pulled up into the lower casing and drill mud circulated for 3.5 hours. The mud combined with a fresh water gel had a viscosity of 38 to 40. Following this circulation of mud the milling equipment was retrieved from the well. This portion of the P&A was completed by 10:30 am on October 20th.

The next major step in the plugging and abandonment of the well involved the setting of a cement retainer. A Baker 5AA Model K-1 cement retainer was set by the NL McCullough wireline crew at the 10,957 foot level. Following withdrawal of the wireline the crews tripped into the hole with the retainer stringer and prepared for cementing. Dowell-Schlumberger was set up and fresh water was circulated through the drill tube. After the cement was mixed it was placed below the retainer at pressure ranging from a maximum of 1400 pounds to the final pressure of 650 pounds. This plug took 120 sacks of Class "G" cement combined with 3/10% D-28 retarder and 35% D-66 silica flour. An additional 26 feet of cement was placed on top of the retainer. It was a successful squeeze. The cementing equipment was removed from the hole and a Baker RTTS was rigged up for pressure testing the casing. This tool was lowered into the well to the 1530 foot level and set. Pressure was applied to the casing bore in increments from 600 pounds to 725 pounds over a period of 1 hour 35

minutes. The casing tested as being in good condition with a maximum pressure of 5,848 pounds at the 10,957 foot level. This amount was 80 percent of the internal yield pressure of 8-5/8 inch N80 casing. This packer was removed from the well and open-ended drill tubing lowered again for circulation of muds.

extra
Drill muds from within the 8-5/8 inch casing were displaced to a frac tank as it was thought it may be contaminated. Mixing of appropriate abandonment muds was started and on October 22nd the mud was placed from 10,931 feet up to 4,600 feet. This mud had a weight of 9.5 pounds per gallon, a viscosity of 45, a pH of 8.0 and was combined with a fresh water gel. Due to the possible split in the 8-5/8 inch casing at 4,492 feet it was decided to place a cement plug between 4,600 feet and 4,400 feet. Western Cementers were rigged up and 57 sacks of Class "G" cement with a 3/10% WR-15 retarder were placed. This cement had a weight of 15.6 pounds per gallon for a yield of 1.18 CF per sack. Abandonment mud was mixed for the well section from 4,400 feet to 1,530 feet where the Cast Iron Bridge Plug would be placed. This mud was placed early on October 23rd. It had a weight of 9.5 pounds per gallon with a viscosity of 85 and a pH of 8.0.

The Baker 5AA Model N-1 cast iron bridge plug was set by the NL McCullough wireline crew at the 1,530 foot level. Much discussion ensued regarding the cement bond log and the possibility of squeezing cement through a perforated casing from the 1530 foot level to the top of the well. Based on the opinion of EPA representative Paul Osborne the cementing of the well was completed as per the original plan. This work was finished at 8:00 am on October 24th. Cleanup work started immediately with the emptying of muds from the agitator tanks into frac tanks. All drill tubing was removed from the racks and decontaminated at the washdown area. Disassembly of the rig started in the afternoon of October 24th and after movement to the washdown facility, decontamination of all segments, and removal to the support area was completed by noon of October 27, 1985. At this time the subcontractor was released.

After the cement drainage pad and sump were removed, the excavation was backfilled and the marker posts installed. Requirements for a printed marker could not be confirmed so the contractor was relieved of this responsibility.

SECTION III PRODUCTIVITY

The Rocky Mountain Arsenal project commenced on September 9th with a slight fear that productivity was surely to suffer due to restrictions placed on the workers. Special clothing had to be donned each day and changed at lunch time after a full decontamination procedure. The fact that everyone had to wear respirators on all jobs wasn't appealing but the crews were ready to face the challenge. Weather was another factor that was inevitable in these later months of the year and the schedule very much depended upon its cooperation.

The contract had a performance duration of 150 days in order to avoid liquidated damages but the Contractor proposed a schedule which was 87.5 days. A work week of 5 days at a single shift was proposed but the idea of working weekends or longer hours in order to meet the schedule was not ruled out.

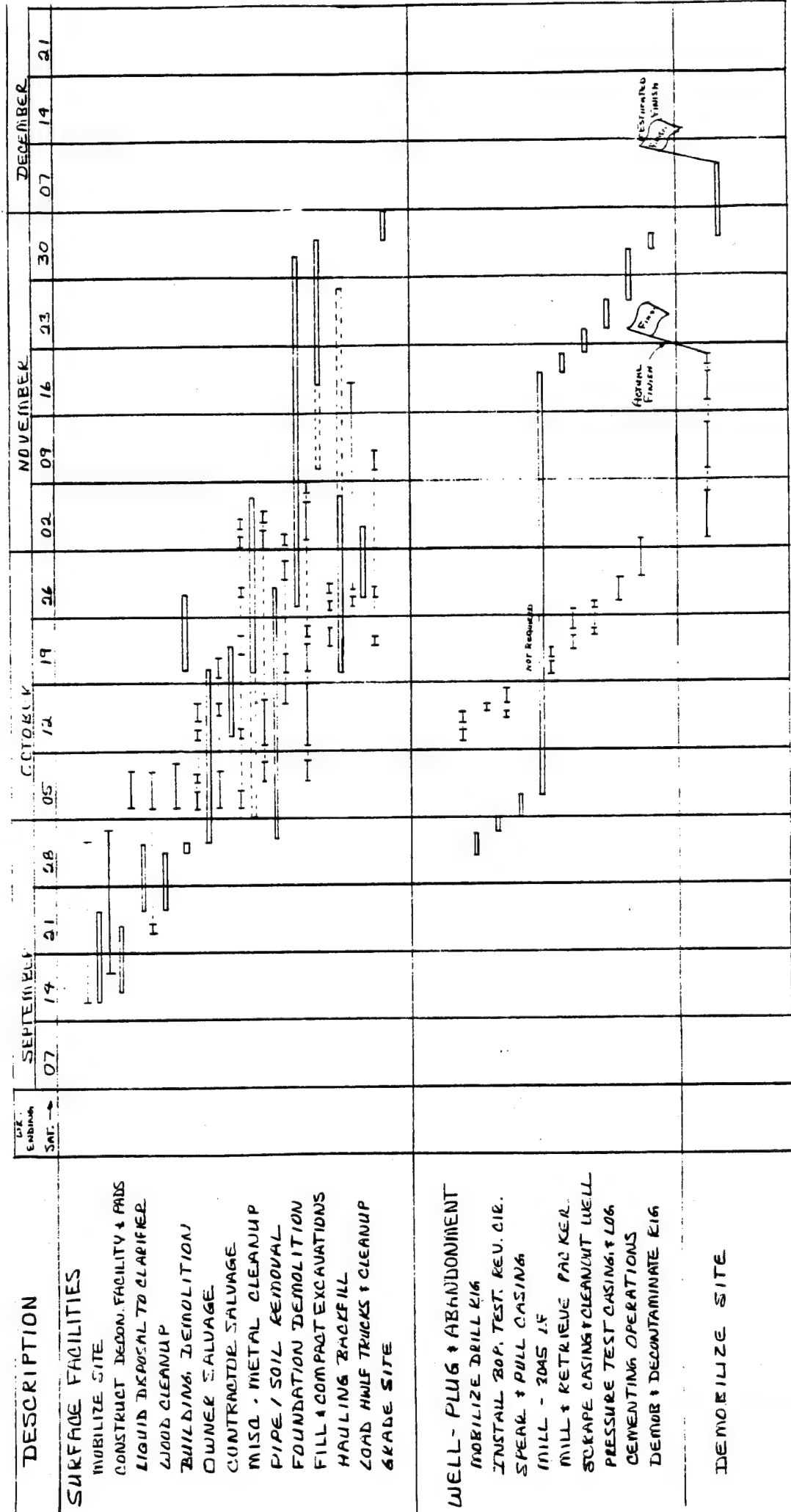
A. Schedule Durations

Despite the restrictions mentioned above, productivity suffered very little over the duration of the project. Wherever possible mechanical equipment was utilized to reduce physical labor. Morale remained exceptionally high under these conditions and this was attributed to the caliber of workers selected. Experienced miners and equipment operators who were used to working under hazardous conditions were recruited for this work. Crews were kept small and all men worked well together. A production safety bonus was established for all employees and this proved beneficial in maintaining our schedule.

The proposed 87.5 day schedule was beaten and the project was completed in 68 days. This duration amounts to 77.7 percent of the proposed schedule and 45.3 percent of the contract allotted time. The estimated and actual durations of construction operations are shown in Figure 2.

ROCKY MOUNTAIN ARSENAL -- BASIN F CLEANUP

SUMMARY SCHEDULE - 1985



Actual Duration & Schedule
Estimated Duration & Schedule

FIGURE 2

B. Labor Distribution

During the project HWC had the operation staffed by 4 people. The Contractor's employees were mainly responsible for the demolition and removal of permanent Basin F facilities, maintenance of construction site facilities, and backup work for the drill rig crews. Maintenance of construction facilities was not solely limited to cleaning of trailers and repairs/lube of equipment but all clothing had to be laundered for single shifts during the entire project and three shifts during the P&A of the well.

Original plans called for a fairly stable number of employees throughout the job with peak periods being covered by overtime. This worked out extremely well. The number of subcontractor employees varied drastically between certain phases of the project.

Figure 3 which follows shows the Contractor and Subcontractor labor distribution throughout the project.

C. Percentage of Work

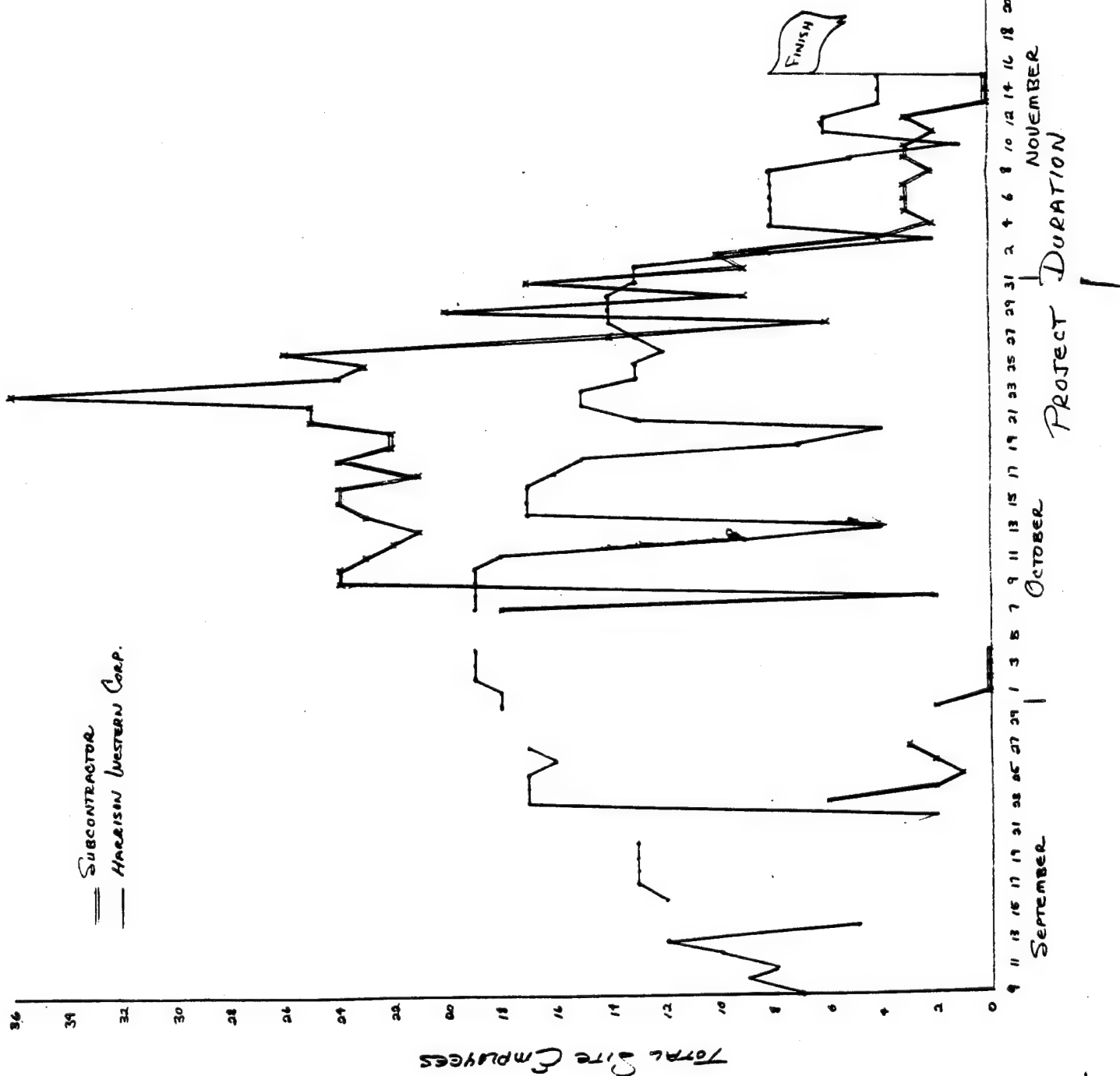
By the requirements of the contract HWC was to perform at least 25 percent of the work on the project unless it was requested of the Contracting Officer that this amount be reduced. This project required several areas of specialization which were either beyond the realm of our organization or it was more cost beneficial for the amount of work concerned to be done by a Subcontractor.

Subcontractor work was performed by the following organizations.

1. Chen & Associates - Backfilling observation, compaction and soil analysis.
2. Power Breaking, Inc. - Demolition of concrete foundations.
3. Spence-Geiger Associates, Inc. - Industrial hygienist support for the project duration as well as contamination monitoring.

FIGURE 3

Project Labor Distribution
Contractor & Subcontractor



4. Exeter Drilling Company - Provided equipment and expertise in the plugging and abandonment of the well.
5. U.S. Pollution Control, Inc. - Provide haulage and disposal of all contaminated materials to an out-of-state hazardous waste landfill (HWLF).
6. Conref Labs, Hager Laboratories - Both these laboratories provided analysis of air as well as construction materials and liquids.
7. NL ACME Tool - Provided specialized tools and consultation in the P&A of the well.
8. NL McCullough - With several different specialized tools they provided inspection logs of the well condition.
9. Baker Service Tools - This company rented special tools for pressure testing of the well casing and also provided the abandonment cement retainer and bridge plug.
10. Dowell-Schlumberger - Provided consultation and equipment for the placement of the bottom well cement plug below the 10,957 foot level.
11. The Holly Clinic - Provided all medical examinations, analysis, and certifications prior to the job starting and at completion.

The final billings of all these subcontractors as a percentage of the total anticipated billing of HWC to the Department of the Army at RMA is equal to 32.15 percent. Therefore the Contractor has fallen well within the bounds of contract specifications by completing 67.85 percent of the work.

SECTION IV
DECONTAMINATION PROCEDURES & TECHNIQUES

The methods of decontamination of personnel and equipment was fairly well dictated by the contract specifications but the arrangement of these facilities was somewhat at the discretion of the Contractor. The criteria was wholly dependent on the sizing and configuration of the various equipment used.

A. Personnel Methods

Upon leaving the "Hot" and "Neutral" working zones each employee had to proceed through a decontamination process that was specifically outlined in the Contractor's Safety and Training Manual. Each person would step into a boot wash area where their rubber boots would be rinsed of mud and contaminants. This area was a translucent plastic panel enclosed shelter equipped with a water hose and spray nozzle. Fluids from this area drained into a catch basin. Respirators and rain gear were also rinsed here prior to entering the "Hot" locker area. In this locker room employees stripped of all gear. Boots, raingear, and hard hats were stored in individual lockers while all garments were bundled together and tagged with an employee's number. As the employee left this locker room for the shower room the bundle of clothes and respirator were taken and deposited through a laundry room trap door.

In the laundry room an employee washed each bundle of clothes in detergent and bleach. Following drying, the individual's bundle was hung on a hook in the hallway under a number corresponding to the tag number on the bundle. Each respirator was washed in soapy water and rinsed with a disinfectant prior to an inspection. If any portion of the respirator was in fault, it was removed from service and given to the hygienist for repairs. All respirators which passed inspection were thoroughly dried, placed in clear plastic bags and put on a shelf above the corresponding number in the hallway. The laundry room was kept busy since men were changing clothes at lunch time, end of shift, or whenever their clothes were wetted while working.

The shower trailer operated with a negative pressure system in the Step-In side which directed contaminants away from the positive pressure clean side (Step-Out) whenever the shower door was opened. A small problem existed in the beginning with the propane fired water heaters. Due to the surrounding of this trailer with other higher structures outside air currents suppressed the exhaust of the heaters and extinguished the pilot lights. This problem was solved by attaching an exhaust vent tube which extended above the roofline.

Employees started drying themselves after stepping out of the shower and completed as they walked down the heated hallway to the "Clean" locker room. Personal clothes were retrieved from the individual's locker and used towels discarded in a plastic basket for laundering. This locker room adjoined the lunchroom and the hygienist's office where each person checked out. The reverse process with the exception of showering took place at the beginning of the day and after lunch. The decontamination process took place at lunch and the end of their daily shift.

B. Equipment Methods

The expanded washdown facility was re-equipped with a steam cleaner and high pressure washer to handle all the decontamination of equipment. A Landa steam cleaner, model PSC3-300 was used to provide initial cleaning of most equipment. This machine operated with a pressure of 300 psi at 315°F and discharged at a capacity of 2.5 gallons per minute. Combined with a heavy duty degreasing agent this machine did a very effective job. The high pressure washer which complemented this operation was also provided by Landa. This machine was a model PHW4-2000 which had a discharge capacity of 4 gallons per minute at 2000 psi. It operated at 200°F.

Most equipment which operated on the site remained within the "Hot" zone at all times. On occasion equipment was required in the support area so they were taken to the washdown facility for decontamination. Once on the cement pad it was steam cleaned to remove any soil and contaminants which would cling to greasy parts. Following a thorough cleaning, the high pressure washer was used to triple rinse

the piece of equipment. The initial decontamination of a piece of equipment was the worst as years of crud had to be removed. Repeated trips through the facility rendered the gear in spotless shape.

In the process of plugging and abandoning the well a large quantity of drill tubing was used or recovered in the process. This tubing required some special method for decontaminating the interior so an apparatus was developed. Two twenty foot lengths of 1 inch diameter steel pipe were coupled together and attached to the steam cleaner or washer hose at one end. A 5 inch diameter wire brushing disk was brazed to a short nipple and attached with a coupling to the other end of the pipe. The open end past the wire disk was capped. Several small holes were placed in the pipe close to and facing the wire disk. Cleaning worked quickly and efficiently with this set-up. All other equipment were cleansed with a trigger operated wand on the end of the hose.

SECTION V
OPERATIONAL ANALYSIS

Contract specifications required that the Contractor retain a commercial testing laboratory to conduct field tests to insure proper soil densities during backfilling. No additional testing was required, however, the Contractor chose to analyze soils and liquids involved in the cleanup process. Monitoring for contaminants took place on a daily basis by the industrial hygienist and some specific air samples were taken for analysis.

A. Backfilling and Compaction

The independent laboratory chosen by the Contractor was a reputable firm of Consulting Geotechnical Engineers named Chen & Associates from Denver, Colorado. They were requested to be on site full time during the backfilling of pipe and building excavations and to conduct density tests as they deemed necessary in all areas. Mr. Kevin McNeill represented the firm as their on site Field Engineer. The results of these tests are presented in Appendix 1.

B. Chemical Analysis of Materials

A sample of air collected from the site was taken to Hager Laboratories, Inc. of Denver for gas chromatographic analysis. Testing was conducted to determine concentrations of the compounds Aldrin and Dieldrin. Results of their analysis are presented in Appendix 2.

Numerous samples of soils, liquids, and building materials were collected during the removal of the Basin F facilities of which several were analyzed. This analysis was performed by Conref Labs of Brighton, Colorado. Test results are presented at the end of this report in Appendix 3.

SECTION VI
SAFETY

Safety was a major concern to HWC throughout this project primarily because this type of work was unique in regards to the handling of hazardous materials. Employees were selected that had previous experience working under potentially dangerous conditions and all received in depth training for this situation. At no time during the project was safety foresaken for production. The specialized safety training and daily reminders greatly reduced the potential for accidents. The hazards in this type of work were enormous but the project was completed with only one lost time accident and several small incidents. One employee received a broken lower leg while laying down heavy drill tubing after decontamination and several others received scratches or punctures from nails when cutting and piling scrap wood. These injuries were either treated at the hospital or the industrial clinic.

On three occasions minor cases of heat exhaustion were observed and treated. Highly productive employees had to be reminded often to slow down their work habits when they were fully suited in hazardous protective clothing. This type of clothing does not breathe freely so body heat is retained.

Medical examinations were compulsory for all site personnel prior to beginning work at RMA as well as upon completion of the job. Certification of pre-employment physicals have been submitted to the COR with the weekly reports and the certification of post-employment medicals is attached in Appendix 4.

DJB:bl:94-1

APPENDIX 1



Chen & Associates
Consulting Geotechnical Engineers

96 South Zuni
Denver, Colorado 80223
303/744-7105

Casper
Cheyenne
Colorado Springs
Glenwood Springs
Rock Springs
Salt Lake City

October 23, 1985

Subject: Fill Observation and Testing,
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky
Mountain Arsenal, Commerce City,
Colorado.

Job No. 1 940 85

Mr. Don Butler
Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Dear Mr. Butler:

As you requested, we visited the subject site and began full-time fill observation and testing on October 7, 1985.

During the observation period, we sampled the fill materials. The materials were tested in our field laboratory for determination of moisture-density relationships in accordance with ASTM procedures. The results of our laboratory tests are presented in the attached figures.

Nuclear density tests were conducted at several areas within the compacted fill. The specifications for fill placement were provided by your office. The results of these tests are presented in the attached daily reports.

We are available to continue part-time or full-time fill observation and testing at your request. We will provide daily reports summarizing all test results. If you have any questions concerning the observation reports, please contact us.

Sincerely,

Chen & Associates, Inc.

By


David M. Dix

Rev. By: DMJ
DMD/ram
Enclosures

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler

Job No. 1 940F 85 Date 10/7/85

Daily Report No. 1 Sheet 1 Of 1

Chen & Associates
Consulting Geotechnical Engineers



Subject: Construction Activities Report
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

WEATHER CONDITIONS AND TEMPERATURE Sunny, 60's.

CONTRACTORS EQUIPMENT

CONSTRUCTION ACTIVITIES

At the request of Mr. Don Butler of Harrison Western Corporation, we visited the site on this date. At the time of our arrival, fill had not been placed for density testing and a respirator for our personnel was not available at this time. Mr. Don Butler of Harrison Western requested our personnel to report to the Holly Clinic for a CHE Test and then return to the site for possible testing. At the time of our second visit, fill was still not prepared for testing. Mr. Butler requested us to return on October 8, 1985.

VERBAL COMMUNICATION WITH CONTRACTOR, ENGINEER, ARCHITECT, OWNER

COPIES:

Kevin McNeill
FIELD OBSERVER

David M. Dix/ram
APPROVED BY



To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler

Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/8/85
Daily Report No. 2 Sheet 1 Of 1

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
1	100'S of Building 802, 10" Clay Tile Line from Little Basin F	RG	126.9	8.8	110.9	10.7	87	Clayey Sand
2	250'S of Building 802, 10" Clay Tile Line from Little Basin F	1' BRG	126.9	8.8	114.1	11.5	90	Clayey Sand
3	350'S of Building 802, 10" Clay Tile Line from Little Basin F	2-1/2' BRG	126.9	8.8	110.3	10.7	87	Clayey Sand
4	400'S of Building 802, 10" Clay Tile Line from Little Basin F	1' BRG	126.9	8.8	111.7	9.9	88	Clayey Sand
5	500'S of Building 802, 10" Clay Line Line from Little Basin F	1-1/2' BRG	126.9	8.8	112.2	8.5	88	Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 85% modified Proctor density.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader
TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader
NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Approx. 3'
METHOD OF ADDING MOISTURE Natural

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT All of the tests taken on this date are located in the removed pipe trench backfill. A sample of the backfill material was obtained to determine the moisture-density relationships. The results are presented in the attached figure.

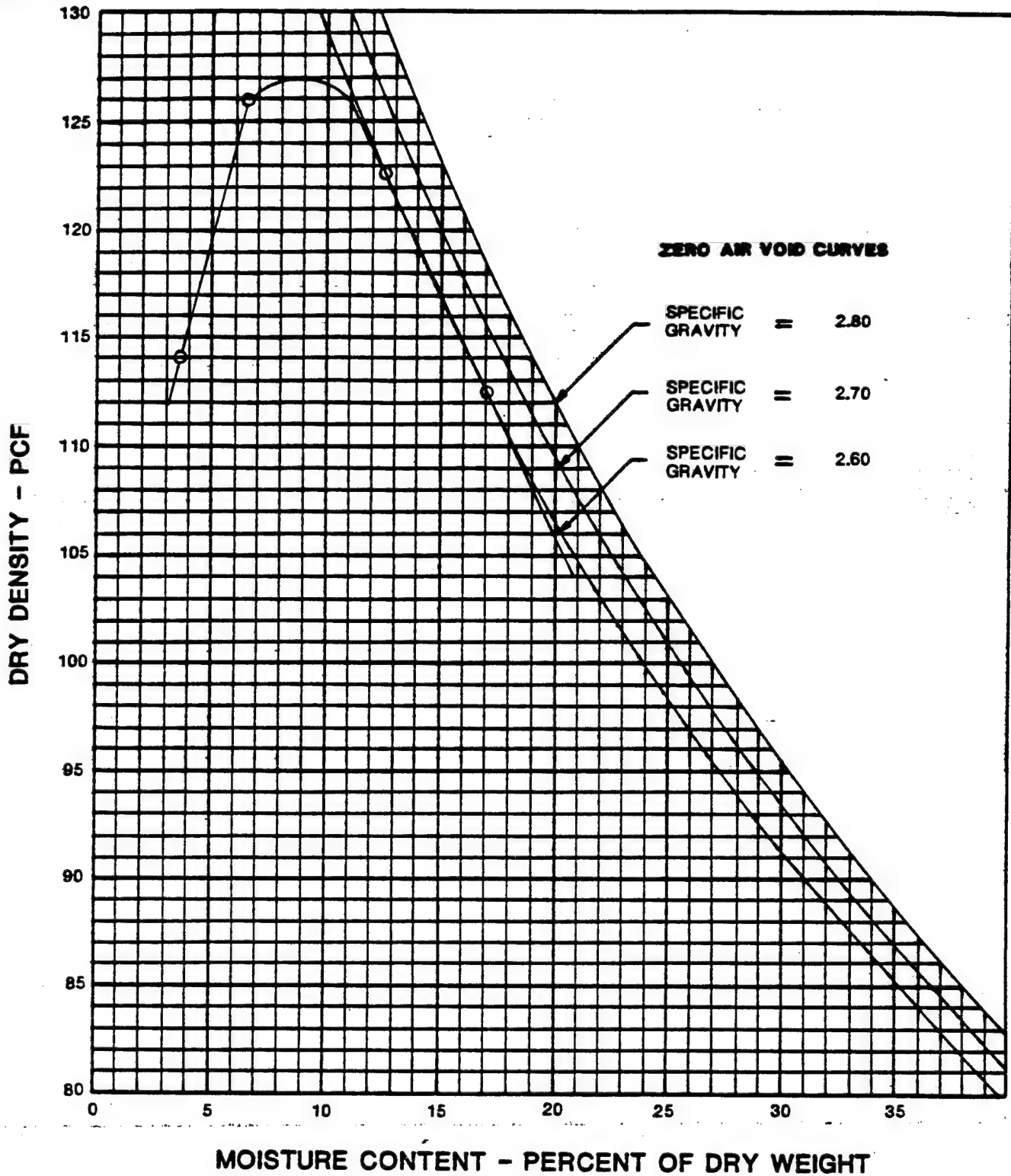
COPIES

Kevin McNeill

FIELD OBSERVER

David M. Dix/ram

APPROVED BY



LOCATION: 10" Clay Tile Line from Little Basin F			MOISTURE-DENSITY RELATIONSHIPS	
HOLE NO.:	DEPTH:	SAMPLE NO.:		
SOIL DESCRIPTION: Clayey Sand			Chen & Associates	
MAX. DRY DENSITY: 126.9 PCF OPT. MOIST. CONTENT: 8.8 %			PROCEDURE: ASTM D-1557-78 Method A	
LIQUID LIMIT: _____		PLASTICITY INDEX: _____		JOB NO.: 1 940F 85
GRAVEL: _____ %		SAND: _____ %		DATE: 10/8/85
		SILT AND CLAY (-200): _____ %		FIG. NO. 1

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/9/85
Daily Report No. 3 Sheet 1 Of 1

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
6	5'N and 20'W of NE Corner, Building 806, H-Line	1'BRG	126.9	8.8	112.3	7.6	88	Clayey Sand
7	5'N and 40'W of NE Corner, Building 806, H-Line	1-1/2' BRG	126.9	8.8	110.7	6.9	87	Clayey Sand
8	20'N and 20'W of NW Corner, Building 806, G-Line	1'BRG	126.9	8.8	111.7	7.5	88	Clayey Sand
9	20'N and 100'W of NE Corner, Building 806, G-Line	1'BRG	126.9	8.8	113.4	6.8	89	Clayey Sand
10	20'N and 125'W of NE Corner, Building 806, G-Line	2'BRG	126.9	8.8	112.1	7.2	88	Clayey Sand
11	50'W of NE Corner, Building 806, J-Line	1'BRG	126.9	8.8	110.4	7.1	87	Clayey Sand
12	100'W and 15'E of NE Corner, Building 806, K-Line	3'BRG	126.9	8.8	111.6	6.5	88	Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 85% modified Proctor density.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader

TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader

NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Natural

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

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CAF-1R (6-85)

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT All of the tests taken on this date are located in the removed pipe trench backfill.

Kevin McNeill FIELD OBSERVER David M. Dix/ram APPROVED BY

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/10/85
Daily Report No. 4 Sheet 1 Of 2

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
13	25'W of SE Corner of Building 802, B-Line	3'BRG	119.4	13.1	106.3	11.5	89	Silty, Clayey Sand
14	125'W of SW Corner of Building 802, B-Line	2'BRG	119.4	13.1	107.4	11.1	90	Silty, Clayey Sand
15	275'W of SE Corner of Building 802, B-Line	RG	119.4	13.1	105.9	12.5	89	Silty, Clayey Sand
16	50'W of NW Corner of Building 802, O-Line	2-1/2' BRG	119.4	13.1	104.8	13.5	88	Silty, Clayey Sand
17	20'N and 3'W of NW Corner of Building 802, P-Line	RG	119.4	13.1	102.7	12.1	86	Silty, Clayey Sand
18	10'N and 15'W of NE Corner of Building 802, N-Line	1'BRG	119.4	13.1	103.5	12.6	87	Silty, Clayey Sand
19	20'N of NW Corner of Building 802, M-Line	3'BRG	119.4	13.1	104.1	12.0	87	Silty, Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 85% modified Proctor density.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader
TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader

NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Natural

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT All of the tests taken on this date are located in the removed pipe trench backfill. A sample of the backfill material was obtained to determine the moisture-density relationships. The results are presented in the attached figure.

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Kevin McNeill FIELD OBSERVER
David M. Dix/ram APPROVED BY

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/10/85
Daily Report No. 4 Sheet 2 Of 2

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
20	15'N and 20'E of NW Corner of Building 802, F-Line	5'BRG	119.4	13.1	105.5	10.7	88	Silty, Clayey Sand
21	20'N and 20'E of NW Corner of Building 802, F-Line	RG	119.4	13.1	106.1	11.3	89	Silty, Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 85% modified Proctor density.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader
TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader
NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Natural

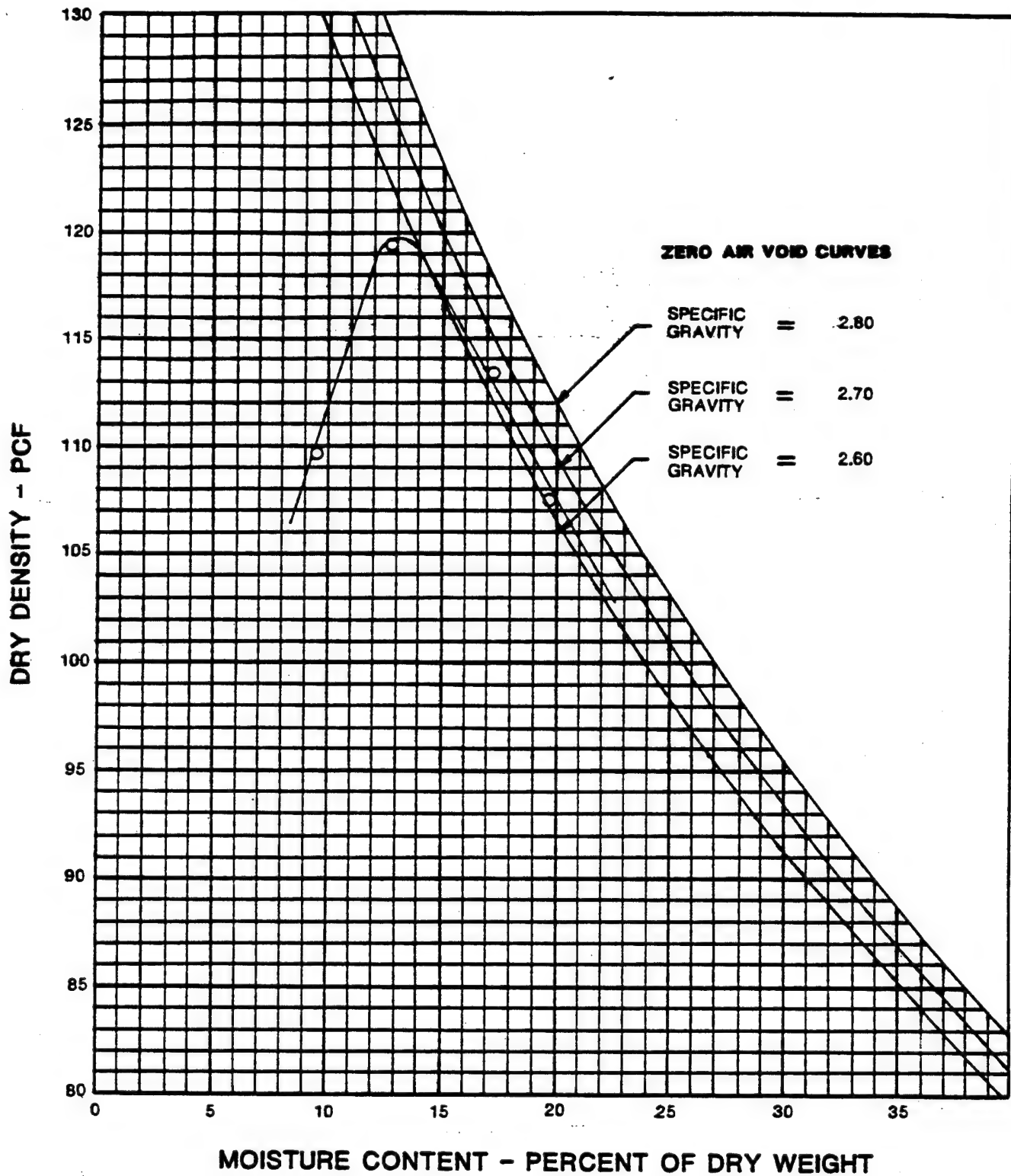
This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT

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Kevin McNeill FIELD OBSERVER
David M. Dix/ram APPROVED BY



LOCATION: Line A			MOISTURE-DENSITY RELATIONSHIPS	
HOLE NO.:	DEPTH:	SAMPLE NO.:		
SOIL DESCRIPTION Silty, Clayey Sand			Chen & Associates	
MAX. DRY DENSITY: 119.4 PCF OPT. MOIST. CONTENT: 13.1 %			PROCEDURE: ASTM D-1557-78 Method A	
LIQUID LIMIT: _____ PLASTICITY INDEX: _____			JOB NO.: 1 940F 85	FIG. NO.
GRAVEL: % SAND: % SILT AND CLAY (-200): %			DATE: 10/10/85	2

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/11/85
Daily Report No. 5 Sheet 1 Of 1

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
22	50'W of Clarifier, A-Line	1'BRG	119.4	13.1	101.9	12.7	85	Silty, Clayey Sand
23	30'S and 50'W of Clarifier, A-Line	2'BRG	119.4	13.1	102.7	11.5	86	Silty, Clayey Sand
24	20'N and 75'W of Clarifier, A-Line	2'BRG	119.4	13.1	101.8	11.7	85	Silty, Clayey Sand
25	75'S of Building 802, C-Line	3'BRG	119.4	13.1	104.0	10.9	87	Silty, Clayey Sand
26	150'S of Building 802, C-Line	2'BRG	119.4	13.1	105.7	12.5	89	Silty, Clayey Sand
27	200'S of Building 802, C-Line	1'BRG	119.4	13.1	102.8	11.6	86	Silty, Clayey Sand
28	250'S of Building 802, C-Line	RG	119.4	13.1	101.5	11.0	85	Silty, Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 85% modified Proctor density.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader

TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader

NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Natural

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT All of the tests taken on this date are located in the previously removed pipe trench backfill.

COPIES

Kevin McNeill FIELD OBSERVER
David M. Dix/ram APPROVED BY

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401

Attention: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 10/14/85
Daily Report No. 6 Sheet 1 Of 1

Subject: Fill Observation and Testing
Disposal of Hazardous Waste,
Facilities at Basin F, Rocky Mountain
Arsenal, Denver, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
29	1200'S of Building 802, 10" Clay Tile Line	RG	119.4	13.1	114.3	13.9	96	Silty, Clayey Sand
30	1225'S of Building 802, 10" Clay Tile Line	RG	119.4	13.1	113.9	13.5	95	Silty, Clayey Sand
31	1175'S of Building 802, 10" Clay Tile Line	RG	119.4	13.1	114.7	14.0	96	Silty, Clayey Sand
32	1100'S of Building 802, 10" Clay Tile Line	RG	119.4	13.1	115.0	13.8	96	Silty, Clayey Sand

SPECIFICATION COMPACTION & MATERIAL 95% modified Proctor density in drainage ditch areas.

TYPE AND NUMBER OF EARTH MOVING UNITS
(2) Backhoes, (1) Dozer, (1) Loader

TYPE AND NUMBER OF COMPACTION UNITS
Wheel Rolled with Loader

NUMBER OF PASSES As Req'd. THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Natural

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☒ FULL TIME OBSERVATION ☐ PART TIME OBSERVATION

PROGRESS REPORT All of the tests taken on this date are located in the 10" clay tile line trench backfill after the pipe had been removed. The tests were taken in the drainage ditch area.

COPIES

Kevin McNeill FIELD OBSERVER David M. Dix/ram APPROVED BY

To Harrison Western Corporation
770 Sims Street
Denver, Colorado 80401
Attn: Mr. Don Butler



Chen & Associates
Consulting Geotechnical Engineers

Job No. 1 940 85 Date 11/6/85
Daily Report No. 7 Sheet 1 Of 1

Subject: Fill Observation and Testing
Disposal of Hazardous Waste, Facilities at
Basin F, Rocky Mountain Arsenal, Commerce
City, Colorado.

TEST NO.	LOCATION	DEPTH OR ELEVATION (FEET)	LABORATORY		FIELD		PERCENT COMPACTION	SOIL TYPE
			MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)		
33	Corner of Clarifier	R.G.	119.4	13.1	109.5	9.6	92	Silty Sandy Clay
34	15'North of Centerline of Clarifier	R.G.	119.4	13.1	111.7	8.9	94	Silty Sandy Clay
35	20'North, 25'East of Southwest Corner of Bullding 802	R.G.	119.4	13.1	101.9	10.1	86	Silty Sandy Clay
36	15'North, 30'East of Southwest Corner of Bullding 806	R.G.	119.4	13.1	107.5	10.5	90	Silty Sandy Clay

SPECIFICATION COMPACTION & MATERIAL
85% modified Proctor density

TYPE AND NUMBER OF EARTH MOVING UNITS Unknown

TYPE AND NUMBER OF COMPACTION UNITS Unknown

NUMBER OF PASSES As Required THICKNESS OF LIFT Unknown
METHOD OF ADDING MOISTURE Unknown

This report presents opinions formed as a result of our observation of fill placement. We have relied on the contractor to continue applying the recommended compactive effort and moisture to the fill during times when our observer is not observing operations. Tests are made of the fill only as believed necessary to calibrate our observer's judgement. Test data are not the sole basis for opinions on whether the fill meets specifications.

☒ FILL TESTED MEETS SPECIFICATIONS.
☐ FILL TESTED DOES NOT MEET SPECIFICATIONS AS INDICATED BY TEST NO.(S)
AND SHOULD BE REMOVED OR REWORKED.
☒ CONTRACTOR ADVISED
☐ FULL TIME OBSERVATION ☒ PART TIME OBSERVATION

PROGRESS REPORT

All of the tests taken on this date are located in the backfill of the removed clarifier and building areas.

COPIES

Kevin McNeill David M. Dix/jlg

FIELD OBSERVER APPROVED BY

APPENDIX 2

REPORT ON SERVICE NUMBER 17835IH
November 19, 1985

To: Jeff Geiger
Spence-Geiger Associates
Evergreen, Colorado

Analysis: The following samples were submitted for analysis:
One set membrane filter and Chrom 102 tubes for aldrin and dieldrin.

Method: PESTICIDES
The pesticide of interest was extracted with a solvent and analyzed by gas chromatography with electron capture detection. The chromatographic peak area for the analyte was compared to a calibration curve obtained from standard solutions.

Results: The results are found on Table 1.

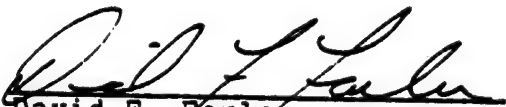
Discussion: The OSHA permissible exposure limit (PEL) for the following compounds are:

Compound	mg/M ³
Aldrin	0.25
Dieldrin	0.25

LT() indicates "less than" with the lower limit of quantification shown in parentheses.

Laboratory data are filed and available upon request.

Submitted by:


David F. Farler
Laboratory Director

DFF/nl

cc: Harrison Western Corp.

SN 17835IH
November 19, 1985

TABLE 1

Sample Number: HW 0150(a)

Air Volume: 161. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

Sample Number: HW 0150(b)

Air Volume: 161. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

REPORT ON SERVICE NUMBER 17889IH
November 19, 1985

To: Jeff Geiger
Spence-Geiger Associates
Evergreen, Colorado

Analysis: The following samples were submitted for analysis:
One set membrane filter and Chrom 102 tubes for aldrin and
dieldrin.

Method: PESTICIDES
The pesticide of interest was extracted with a solvent and
analyzed by gas chromatography with electron capture
detection. The chromatographic peak area for the analyte
was compared to a calibration curve obtained from standard
solutions.

Results: The results are found on Table 1.

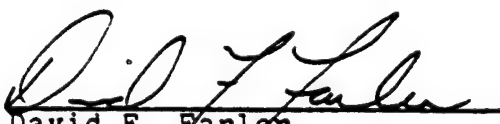
Discussion: The OSHA permissible exposure limit (PEL) for the
following compounds are:

Compound	mg/M ³
Aldrin	0.25
Dieldrin	0.25

LT() indicates "less than" with the lower limit of
quantification shown in parentheses.

Laboratory data are filed and available upon request.

Submitted by:


David F. Farler
Laboratory Director

DFF/nl

cc: Harrison Western Corp.

SN 17889IH
November 19, 1985

TABLE 1

Sample Number: HW 0151(a)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

Sample Number: HW 0151(b)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

REPORT ON SERVICE NUMBER 17948IH
November 19, 1985

To: Jeff Geiger
Spence-Geiger Associates
Evergreen, Colorado

Analysis: The following samples were submitted for analysis:
Two sets membrane filters and Chrom 102 tubes for aldrin
and dieldrin.

Method: PESTICIDES
The pesticide of interest was extracted with a solvent and
analyzed by gas chromatography with electron capture
detection. The chromatographic peak area for the analyte
was compared to a calibration curve obtained from standard
solutions.

Results: The results are found on Table 1.

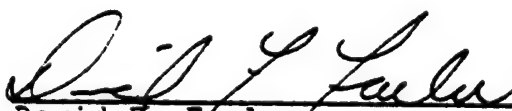
Discussion: The OSHA permissible exposure limit (PEL) for the
following compounds are:

Compound	mg/M ³
Aldrin	0.25
Dieldrin	0.25

LT() indicates "less than" with the lower limit of
quantification shown in parentheses.

Laboratory data are filed and available upon request.

Submitted by:


David F. Farler
Laboratory Director

DFF/nl

cc: Harrison Western Corp.

SN 17948IH
November 19, 1985

TABLE 1

Sample Number: HW 0152(a)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

Sample Number: HW 0152(b)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

Sample Number: HW 0153(a)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

Sample Number: HW 0153(b)

Air Volume: 155. liters

Compound	Total (mg)	Air Concentration
aldrin	LT(0.00001)	LT(0.00007)mg/cu.M.
dieldrin	LT(0.00001)	LT(0.00007)mg/cu.M.

APPENDIX 3

CENREF LABORATORY REPORT

Cenref Laboratory No. See below. Date Submitted October 21, 1985

Requested By Don J. Butler Date Completed December 6, 1985

Sample Identification	Analysis	Result
Water Samp.No.2: Casing water	Reactivity	less than 1.0 mg/kg
from frac tank #1	pH	9.3
(C85HW-187)	Phenols	0.43 mg/l
Water Samp.No.4: Clarifier	Reactivity	20 mg/kg
water from sumps	pH	6.9
(C85HW-188)	Phenols	0.03 mg/l
Water Samp.No.9: Washdown	Reactivity	less than 1.0 mg/kg
water from carbon cell	pH	8.0
Flow thru volume = 1463 gal.	Phenols	0.02 mg/l
(C85HW-189)		
Water Samp.No.10: Clarifier	Reactivity	6.5 mg/kg
water after settling tanks and	pH	6.4
carbon cell		
Flow thru volume - 3200 gal.		
(C85HW-190)		

cc: Purchase Order #62246-074

HWC(D)DB
CRC-2

R. C. Stites (Jr.)

General Manager
Title

Invoice: Harrison Western, 770 Simms Street, Denver, CO 80401

CENREF LABORATORY REPORT

Cenref Lab No. C85MS-250

Date Submitted Oct. 28 & Nov. 6, 1985

Requested By Don Butler

Date Completed December 10, 1985

Sample Description: Casing Water from Frac Tank #1

P.O. #62246-074

Analysis	Results
Dioxin	Not Seen

Comments: Dioxin screen per EPA Method 625

cc: HWC(D)DB
CRC-2

P. C. Butler (TAG)

Title

General Manager

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497



Century Refining Company

Date Submitted 10/28/85 & 11/6/85

Date Completed December 10, 1985

Sample Description: Clarifier Water from Sumps P.O. # 62246-074

[illegible]

Comments: _____

cc: HWC-Denver
CRC-2

R. C. Stites (TAB) General Manager
Title

Invoice: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141
Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292
Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORT

EPA Method 625

(Page 1 of 2)

Cenref Lab No. C85MS-251 Date Sampled _____
 Sampled by _____ Date Received 10/28/85 & 11/6/85
 Requested by Don Butler Date Completed December 6, 1985
 Sample Description: Clarifier H₂O from Sumps P.O. #62246-075

SEMI-VOLATILE ORGANICS: (BASE/NEUTRAL ACID EXTRACT)	CAS No.:	RESULT: ($\mu\text{g}/\text{l}$) ¹	AMD L: ($\mu\text{g}/\text{l}$) ²	SDL: ($\mu\text{g}/\text{l}$) ³
Phenol	108-95-2	21	10	14
bis(-2-Chloroethyl)Ether	111-44-4	BDL	5	7
2-Chlorophenol	95-57-8	BDL	10	14
1,3-Dichlorobenzene	541-73-1	BDL	5	7
1,4-Dichlorobenzene	106-46-7	BDL	5	7
1,2-Dichlorobenzene	95-50-1	BDL	5	7
bis(2-chloroisopropyl)Ether	39638-32-9	BDL	5	7
N-Nitroso-Di-n-Propylamine	621-64-7	BDL	5	7
Hexachloroethane	67-72-1	BDL	10	14
Nitrobenzene	98-95-3	BDL	5	7
Isophorone	78-59-1	BDL	1	1
2-Nitrophenol	88-75-5	BDL	10	14
2,4-Dimethylphenol	105-67-9	BDL	10	14
bis(-2-Chloroethoxy)Methane	111-91-1	BDL	5	7
2,4-Dichlorophenol	120-83-2	BDL	5	7
1,2,4-Trichlorobenzene	120-82-1	BDL	1	1
Naphthalene	91-20-3	BDL	1	1
Hexachlorobutadiene	87-68-3	BDL	1	1
4-Chloro-3-Methylphenol	59-50-7	BDL	1	1
2,4,6-Trichlorophenol	88-06-2	BDL	10	14
2-Chloronaphthalene	91-58-7	BDL	5	7
Dimethyl Phthalate	131-11-3	BDL	1	1
Acenaphthylene	208-96-8	BDL	5	7
Acenaphthene	83-32-9	EDL	5	7
2,4-Dinitrophenol	51-28-5	BDL	50	70
4-Nitrophenol	100-02-7	BDL	50	70
2,4-Dinitrotoluene	121-14-2	BDL	10	14
2,6-Dinitrotoluene	606-20-2	BDL	5	7
Diethylphthalate	84-66-2	BDL	5	7
4-Chlorophenyl-phenylether	7005-72-3	BDL	5	7
Fluorene	86-73-7	EDL	5	7
4,6-Dinitro-2-Methylphenol	534-52-1	BDL	5	7
4-Bromophenyl-phenylether	101-55-3	BDL	10	14
Hexachlorobenzene	118-74-1	BDL	5	7
Pentachlorophenol	87-86-5	BDL	25	35

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CENREF LABORATORY REPORT

EPA Method 625

(Page 2 of 2)

Cenref Lab No. C85MS-251

SEMI-VOLATILE ORGANICS: (BASE/NEUTRAL ACID EXTRACT)	CAS No.:	RESULT: ($\mu\text{g/l}$) ¹	AMD L ($\mu\text{g/l}$) ²	SDL: ($\mu\text{g/l}$) ³
Phenanthrene	85-01-8	BDL	10	14
Anthracene	120-12-7	BDL	5	7
Di-n-Butylphthalate	84-74-2	BDL	10	14
Fluoranthene	206-44-0	BDL	10	14
Pyrene	129-00-0	BDL	10	14
Butylbenzylphthalate	85-68-7	BDL	5	7
3,3'-Dichlorobenzidine	91-94-1	BDL	10	14
Benzo(a)Anthracene	56-55-3	BDL	1	1
bis(2-Ethylhexyl)Phthalate	117-81-7	BDL	5	7
Chrysene	218-01-9	BDL	10	14
Di-n-Octyl Phthalate	117-84-0	BDL	10	14
Benzo(b)Fluoranthene	205-99-2	BDL	10	14
Benzo(k)Fluoranthene	207-08-9	BDL	10	14
Benzo(a)Pyrene	50-32-8	BDL	5	7
Indeno(1,2,3-cd)Pyrene	193-39-5	BDL	5	7
Dibenz(a,h)Anthracene	53-70-3	BDL	5	7
Benzo(g,h,i)Perylene	191-24-2	BDL	10	14

¹BDL = "Below Detection Limit" (SDL)²Approximate Method Detection Limit³Sample Detection Limit (if different than AMDL)Comments: Sample also contained substantial amounts of organic acid.cc: HWC-Denver
CRC-2R. E. Dyer (JAB)General Manager
Title

INVOICE: Harrison & Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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CENREF LABORATORY REPORT

Cenref Lab No. C85MS 252 Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler Date Completed December 10, 1985

Sample Description: Washdown Water from Carbon Cell P.O. # 62246-074

Analysis	Results
Dioxin	Not Seen

Comments: Dioxin screen per EPA Method 625

cc: HWC-Denver
CRC-2

R. C. Dittler CSAB General Manager
Title

Invoice: Harrison Western

CENREF LABORATORY REPORTCenref Lab No. C85MS-253Date Submitted Oct. 28 & Nov. 6, 1985Requested By Don ButlerDate Completed December 10, 1985Sample Description: Clarifier Water after settling tanks and carbon cellP.O. #62246-074

Analysis	Results
Dioxin	Not Seen

Comments: Dioxin screen per EPA Method 625cc: HWC(D)DB
CRC-2R. E. Butler (TAB)

Title

General Manager

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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CENREF LABORATORY REPORT

Cenref Lab No. C85MS-254

Date Submitted October 28 & November 6, 1985

Requested By Don Butler

Date Completed December 11, 1985

Sample Description: Triple Rinse Water

P. O. #62246-074

Analysis	Results
Dioxin	Not Seen

Comments: Dioxin screen per EPA Method 625

cc: HWC(D)DB
CRC-2

Title

R. E. Stutes (JAB)

General Manager

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85MS-255

Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler

Date Completed December 11, 1985

Sample Description: Earth Blended Soil Sample P.O. # 62246-074

[illegible]

Comments: Dioxin Screen per EPA Method 625 further tests by Dioxin Lab

required for confirmation of Dioxin.

cc: HWC-Denver
CRC-2

R. C. Stutes (Jr.) General Manager
Title

Invoice: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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CENREF LABORATORY REPORT

EPA Method 625

(Page 1 of 2)

Cenref Lab No. C85MS-255 Date Sampled _____
 Sampled by _____ Date Received 10/28/85 & 11/6/85
 Requested by Don Butler Date Completed December 10, 1985
 Sample Description: Blended Earth Sample P.O. # 62246-074

SEMI-VOLATILE ORGANICS: (BASE/NEUTRAL ACID EXTRACT)	CAS No.:	RESULT: ($\mu\text{g/kg}$) ¹	AMD L: ($\mu\text{g/l}$) ²	SDL: ($\mu\text{g/kg}$) ³
Phenol	108-95-2	BDL	10	333
bis(-2-Chloroethyl)Ether	111-44-4	BDL	5	166
2-Chlorophenol	95-57-8	BDL	10	333
1,3-Dichlorobenzene	541-73-1	BDL	5	166
1,4-Dichlorobenzene	106-46-7	BDL	5	166
1,2-Dichlorobenzene	95-50-1	BDL	5	166
bis(2-chloroisopropyl)Ether	39638-32-9	BDL	5	166
N-Nitroso-Di-n-Propylamine	621-64-7	BDL	5	166
Hexachloroethane	67-72-1	BDL	10	333
Nitrobenzene	98-95-3	BDL	5	166
Isophorone	78-59-1	BDL	1	33
2-Nitrophenol	88-75-5	BDL	10	333
2,4-Dimethylphenol	105-67-9	BDL	10	333
bis(-2-Chloroethoxy)Methane	111-91-1	BDL	5	166
2,4-Dichlorophenol	120-83-2	BDL	5	166
1,2,4-Trichlorobenzene	120-82-1	BDL	1	33
Naphthalene	91-20-3	BDL	1	33
Hexachlorobutadiene	87-68-3	BDL	1	33
4-Chloro-3-Methylphenol	59-50-7	BDL	1	33
2,4,6-Trichlorophenol	88-06-2	BDL	10	333
2-Chloronaphthalene	91-58-7	BDL	5	166
Dimethyl Phthalate	131-11-3	BDL	1	33
Acenaphthylene	208-96-8	BDL	5	166
Acenaphthene	83-32-9	BDL	5	166
2,4-Dinitrophenol	51-28-5	BDL	50	1660
4-Nitrophenol	100-02-7	BDL	50	1660
2,4-Dinitrotoluene	121-14-2	BDL	10	333
2,6-Dinitrotoluene	606-20-2	BDL	5	166
Diethylphthalate	84-66-2	BDL	5	166
4-Chlorophenyl-phenylether	7005-72-3	BDL	5	166
Fluorene	86-73-7	BDL	5	166
4,6-Dinitro-2-Methylphenol	534-52-1	BDL	5	166
4-Bromophenyl-phenylether	101-55-3	BDL	10	333
Hexachlorobenzene	118-74-1	BDL	5	166
Pentachlorophenol	87-86-5	BDL	25	832

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Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORT

EPA Method 625

(Page 2 of 2)

Cenref Lab No. C85MS-255

SEMI-VOLATILE ORGANICS: (BASE/NEUTRAL ACID EXTRACT)	CAS No.:	RESULT: ($\mu\text{g}/\text{l}$) ¹	AMDL ($\mu\text{g}/\text{l}$) ²	SDL: ($\mu\text{g}/\text{l}$) ³
Phenanthrene	85-01-8	BDL	10	333
Anthracene	120-12-7	BDL	5	166
Di-n-Butylphthalate	84-74-2	BDL	10	333
Fluoranthene	206-44-0	BDL	10	333
Pyrene	129-00-0	BDL	10	333
Butylbenzylphthalate	85-68-7	BDL	5	166
3,3'-Dichlorobenzidine	91-94-1	BDL	10	333
Benzo(a)Anthracene	56-55-3	BDL	1	33
bis(2-Ethylhexyl)Phthalate	117-81-7	BDL	5	166
Chrysene	218-01-9	BDL	10	333
Di-n-Octyl Phthalate	117-84-0	BDL	10	333
Benzo(b)Fluoranthene	205-99-2	BDL	10	333
Benzo(k)Fluoranthene	207-08-9	BDL	10	333
Benzo(a)Pyrene	50-32-8	BDL	5	166
Indeno(1,2,3-cd)Pyrene	193-39-5	BDL	5	166
Dibenz(a,h)Anthracene	53-70-3	BDL	5	166
Benzo(g,h,i)Perylene	191-24-2	BDL	10	333

¹BDL = "Below Detection Limit" (SDL)²Approximate Method Detection Limit³Sample Detection Limit (if different than AMDL)Comments: Results on weight as received.cc: HWC-Denver
CRC-2P. C. Stites (JAS)General Manager
Title

Invoice: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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CENREF LABORATORY REPORT

Cenref Lab No. C85MS-256

Date Submitted Oct. 28 & Nov. 6, 1985

Requested By Don Butler

Date Completed December 10, 1985

Sample Description: Wood from Large Raft Pile

P.O. #62246-074

Analysis	Results
Dioxin	Not seen

Comments: Dioxin screen per EPA Method 625

cc: HWC(D)DB
CRC-2

R. E. Stites *CSB*

Title

General Manager

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORT

Cenref Lab No. C85MS-257

Date Submitted Oct. 28 & Nov. 6, 1985

Requested By Don Butler

Date Completed December 10, 1985

Sample Description: Concrete

P.O. #62246-074

Analysis	Results
Dioxin	Not seen

Comments: Dioxin screen per EPA Method 625

cc: HWC(D)DB
CRC-2

R. E. States (JAB) General Manager
Title

Invoice: Harrison Western Corp.

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1572 Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler Date Completed December 6, 1985

Sample Description: Casing Water from Frac Tank #1 P.O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 0.05 µg/l
Beta-BHC	Less than 0.05 µg/l
Delta-BHC	Less than 0.05 µg/l
Gamma-BHC (Lindane)	Less than 0.05 µg/l
Heptachlor	Less than 0.05 µg/l
Aldrin	Less than 0.05 µg/l
Heptachlor Epoxide	Less than 0.05 µg/l
Endosulfan I	Less than 0.05 µg/l
Dieldrin	Less than 0.10 µg/l
4,4'-DDE	Less than 0.10 µg/l
Endrin	Less than 0.10 µg/l
Endosulfan II	Less than 0.10 µg/l
4,4'-DDD	Less than 0.10 µg/l
Endosulfan Sulfate	Less than 0.10 µg/l
4,4'-DDT	Less than 0.10 µg/l
Methoxychlor	Less than 0.5 µg/l
Endrin Ketone	Less than 0.10 µg/l
Chlordane	Less than 0.5 µg/l
Toxaphene	Less than 1.0 µg/l
Aroclor-1016	Less than 0.5 µg/l
Aroclor-1221	Less than 0.5 µg/l
Aroclor-1232	Less than 0.5 µg/l
Aroclor-1242	Less than 0.5 µg/l
Aroclor-1248	Less than 0.5 µg/l
Aroclor-1254	Less than 1.0 µg/l
Aroclor-1260	Less than 1.0 µg/l

cc:

HWC-Denver
CRC-2

D. E. Dittler (JAB)

General Manager
Title

INVOICE: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

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CENREF LABORATORY REPORT

Cenref Lab No. C85P-1572 Date Submitted 10/28/85 & 11/6/85
 Requested By Don Butler Date Completed December 11, 1985
 Sample Description: Casing Water from Frac Tank #1 P.O. # 62246-074

Analysis	Results
2,4 - D	Less than 10 $\mu\text{g/kg}$
2,4 - DB	Less than 10 $\mu\text{g/kg}$
2,4,5 - T	Less than 1 $\mu\text{g/kg}$
2,4,5 - TP	Less than 1 $\mu\text{g/kg}$
Dichlorprop	Less than 10 $\mu\text{g/kg}$
MCPA	Less than 2000 $\mu\text{g/kg}$
MCPP	Less than 2000 $\mu\text{g/kg}$

Comments: This sample bottle contained sludge with little water present.
Sample was weighed and data reported on a weight basis.

cc: HWC-Denver
CRC-2

R. C. Stites (TAS) General Manager
Title

Invoice: Harrison Western

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1573

Date Submitted Oct. 28 & Nov. 6, 1985

Requested By Don Butler

Date Completed December 6, 1985

Sample Description: Clarifier Water from Sumps

P.O. #62246-074

Analysis	Results
Alpha-BHC	less than 0.05 ug/l
Beta-BHC	less than 0.05 ug/l
Delta-BHC	less than 0.05 ug/l
Gamma-BHC (Lindane)	less than 0.05 ug/l
Heptachlor	less than 0.05 ug/l
Aldrin	less than 0.05 ug/l
Heptachlor Epoxide	less than 0.05 ug/l
Endosulfan I	less than 0.05 ug/l
Dieldrin	less than 0.10 ug/l
4,4'-DDE	less than 0.10 ug/l
Endrin	less than 0.10 ug/l
Endosulfan II	less than 0.10 ug/l
4,4'-DDD	less than 0.10 ug/l
Endosulfan Sulfate	less than 0.10 ug/l
4,4'-DDT	less than 0.10 ug/l
Methoxychlor	less than 0.5 ug/l
Endrin Ketone	less than 0.10 ug/l
Chlordane	less than 0.5 ug/l
Toxaphene	less than 1.0 ug/l
Aroclor-1016	less than 0.5 ug/l
Aroclor-1221	less than 0.5 ug/l
Aroclor-1232	less than 0.5 ug/l
Aroclor-1242	less than 0.5 ug/l
Aroclor-1248	less than 0.5 ug/l
Aroclor-1254	less than 1.0 ug/l
Aroclor-1260	less than 1.0 ug/l

cc: HWC(D)DB
CRC-2

D. E. Butler (TAB) General Manager
Title

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORTCenref Lab No. C85P-1573Date Submitted Oct. 28 & Nov. 6, 1985Requested By Don ButlerDate Completed December 11, 1985Sample Description: Clarifier Water from Sumps

Analysis	Results
2,4 - D	less than 1 $\mu\text{g/l}$
2,4 - DB	less than 1 $\mu\text{g/l}$
2,4,5 - T	less than 0.1 $\mu\text{g/l}$
2,4,5 - TP	less than 0.1 $\mu\text{g/l}$
Dichlorprop	less than 1 $\mu\text{g/l}$
MCPA	less than 200 $\mu\text{g/l}$
MCPD	less than 200 $\mu\text{g/l}$

Comments: P.O. #62246-074cc: HWC(D)DB
CRC-2R. E. Stiter (JAB)

Title

General Manager

Invoice: Harrison Western Crop.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1574 Date Submitted 10/28/85 & 11/6/85
 Requested By Don Butler Date Completed December 6, 1985
 Sample Description: Washdown Water from Carbon cell P.O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 0.05 µg/l
Beta-BHC	Less than 0.05 µg/l
Delta-BHC	Less than 0.05 µg/l
Gamma-BHC (Lindane)	Less than 0.05 µg/l
Heptachlor	Less than 0.05 µg/l
Aldrin	Less than 0.05 µg/l
Heptachlor Epoxide	Less than 0.05 µg/l
Endosulfan I	Less than 0.05 µg/l
Dieldrin	Less than 0.10 µg/l
4 4-DDE	Less than 0.10 µg/l
Endrin	Less than 0.10 µg/l
Endosulfan II	Less than 0.10 µg/l
4 4-DDD	Less than 0.10 µg/l
Endosulfan Sulfate	Less than 0.10 µg/l
4 4-DDT	Less than 0.10 µg/l
Methoxychlor	Less than 0.5 µg/l
Endrin Ketone	Less than 0.10 µg/l
Chlordane	Less than 0.5 µg/l
Toxaphene	Less than 1.0 µg/l
Aroclor-1016	Less than 0.5 µg/l
Aroclor-1221	Less than 0.5 µg/l
Aroclor-1232	Less than 0.5 µg/l
Aroclor-1242	Less than 0.5 µg/l
Aroclor-1248	Less than 0.5 µg/l
Aroclor-1254	Less than 1.0 µg/l
Aroclor-1260	Less than 1.0 µg/l

cc: HWC-Denver
CRC-2

R. E. Dites (Tog) General Manager
Title

INVOICE: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141
 Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292
 Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORTCenref Lab No. C85P-1574Date Submitted 10/28/85 & 11/6/85Requested By Don ButlerDate Completed December 11 1985Sample Description: Washdown Water from Carbon Cell

Analysis	Results
2 4 - D	Less than 1 $\mu\text{g}/\text{l}$
2,4 - DB	Less than 1 $\mu\text{g}/\text{l}$
2,4,5 - T	Less than 0.1 $\mu\text{g}/\text{l}$
2,4,5 - TP	Less than 0.1 $\mu\text{g}/\text{l}$
Dichlorprop	Less than 1 $\mu\text{g}/\text{l}$
MCPA	Less than 200 $\mu\text{g}/\text{l}$
MCPP	Less than 200 $\mu\text{g}/\text{l}$

Comments: P.O. # 62246-074cc: HWC-Denver
CRC-2R. E. Dittus (TAB) General Manager
Title

Invoice: Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1575 Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler Date Completed December 6, 1985

Sample Description: Clarifier Water after Settling Tanks and Carbon Cell

P.O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 0.05 µg/l
Beta-BHC	Less than 0.05 µg/l
Delta-BHC	Less than 0.05 µg/l
Gamma-BHC (Lindane)	Less than 0.05 µg/l
Heptachlor	Less than 0.05 µg/l
Aldrin	Less than 0.05 µg/l
Heptachlor Epoxide	Less than 0.05 µg/l
Endosulfan I	Less than 0.05 µg/l
Dieldrin	Less than 0.10 µg/l
4 4-DDE	Less than 0.10 µg/l
Endrin	Less than 0.10 µg/l
Endosulfan II	Less than 0.10 µg/l
4 4-DDD	Less than 0.10 µg/l
Endosulfan Sulfate	Less than 0.10 µg/l
4 4-DDT	Less than 0.10 µg/l
Methoxychlor	Less than 0.5 µg/l
Endrin Ketone	Less than 0.10 µg/l
Chlordane	Less than 0.5 µg/l
Toxaphene	Less than 1.0 µg/l
Aroclor-1016	Less than 0.5 µg/l
Aroclor-1221	Less than 0.5 µg/l
Aroclor-1232	Less than 0.5 µg/l
Aroclor-1242	Less than 0.5 µg/l
Aroclor-1248	Less than 0.5 µg/l
Aroclor-1254	Less than 1.0 µg/l
Aroclor-1260	Less than 1.0 µg/l

cc: HWC-Denver
CRC-2

INVOICE: Harrison Western

R. C. Stutes (TAG)

General Manager
Title

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1575

Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler

Date Completed December 11, 1985

Sample Description: Clarifier Water after Settling Tanks and Carbon Cell

P.O. # 62246-074

Analysis	Results
2,4 - D	Less than 1 µg/l
2,4 - DB	Less than 1 µg/l
2,4,5 - T	Less than 0.1 µg/l
2,4,5 - TP	Less than 0.1 µg/l
Dichlorprop	Less than 1 µg/l
MCPA	Less than 200 µg/l
MCPP	Less than 200 µg/l

Comments: _____

cc: HWC-Denver
CRC-2

R. C. Butler (JAB) General Manager
Title

Invoice: Harrison Western

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1576

Date Submitted Oct. 28 & Nov. 6, 1985

Requested By Don Butler

Date Completed December 6, 1985

Sample Description: Triple Rinse Water.

P. O. #62246-074

Analysis	Results
Alpha-BHC	less than 0.05 µg/l
Beta-BHC	less than 0.05 µg/l
Delta-BHC	less than 0.05 µg/l
Gamma-BHC (Lindane)	less than 0.05 µg/l
Heptachlor	less than 0.05 µg/l
Aldrin	less than 0.05 µg/l
Heptachlor Epoxide	less than 0.05 µg/l
Endosulfan I	less than 0.05 µg/l
Dieldrin	0.16 µg/l
4,4-DDE	less than 0.10 µg/l
Endrin	less than 0.10 µg/l
Endosulfan II	less than 0.10 µg/l
4,4-DDD	less than 0.10 µg/l
Endosulfan Sulfate	less than 0.10 µg/l
4 4-DDT	less than 0.10 µg/l
Methoxychlor	less than 0.5 µg/l
Endrin Ketone	less than 0.10 µg/l
Chlordane	less than 0.5 µg/l
Toxaphene	less than 1.0 µg/l
Aroclor-1016	less than 0.5 µg/l
Aroclor-1221	less than 0.5 µg/l
Aroclor-1232	less than 0.5 µg/l
Aroclor-1242	less than 0.5 µg/l
Aroclor-1248	less than 0.5 µg/l
Aroclor-1254	less than 1.0 µg/l
Aroclor-1260	less than 1.0 µg/l

cc: HWC(D)DB
CRC-2

B. C. Stites (JAB) General Manager
Title

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORTCenref Lab No. C85P-1576Date Submitted Oct. 28 & Nov. 6, 1985Requested By Don ButlerDate Completed December 11, 1985Sample Description: Triple Rinse Water

Analysis	Results
2,4 - D	less than 1 $\mu\text{g/l}$
2,4 - DB	less than 1 $\mu\text{g/l}$
2,4,5 - T	less than 0.1 $\mu\text{g/l}$
2,4,5 - TP	less than 0.1 $\mu\text{g/l}$
DichlorProp	less than 1 $\mu\text{g/l}$
MCPA	less than 200 $\mu\text{g/l}$
MCPP	less than 200 $\mu\text{g/l}$

Comments: P.O. #62246-074cc: HWC(D)DB
CRC-2

Title

Invoice: Harrison Western Corp.

R. E. Ditter (TAB)General Manager

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1577 Date Submitted 10/28/85 & 11/6/85
 Requested By Don Butler Date Completed December 6, 1985
 Sample Description: Earth - Blended Soil Samples P O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 8 $\mu\text{g/kg}$
Beta-BHC	Less than 8 $\mu\text{g/kg}$
Delta-BHC	Less than 8 $\mu\text{g/kg}$
Gamma-BHC (Lindane)	Less than 8 $\mu\text{g/kg}$
Heptachlor	Less than 8 $\mu\text{g/kg}$
Aldrin	230 $\mu\text{g/kg}$
Heptachlor Epoxide	Less than 8 $\mu\text{g/kg}$
Endosulfan I	Less than 8 $\mu\text{g/kg}$
Dieldrin	310 $\mu\text{g/kg}$
4,4'-DDE	Less than 16 $\mu\text{g/kg}$
Endrin	230 $\mu\text{g/kg}$
Endosulfan II	Less than 16 $\mu\text{g/kg}$
4,4'-DDD	Less than 16 $\mu\text{g/kg}$
Endosulfan Sulfate	Less than 16 $\mu\text{g/kg}$
4,4'-DDT	Less than 16 $\mu\text{g/kg}$
Methoxychlor	Less than 80 $\mu\text{g/kg}$
Endrin Ketone	Less than 16 $\mu\text{g/kg}$
Chlordane	Less than 80 $\mu\text{g/kg}$
Toxaphene	Less than 160 $\mu\text{g/kg}$
Aroclor-1016	Less than 80 $\mu\text{g/kg}$
Aroclor-1221	Less than 80 $\mu\text{g/kg}$
Aroclor-1232	Less than 80 $\mu\text{g/kg}$
Aroclor-1242	Less than 80 $\mu\text{g/kg}$
Aroclor-1248	Less than 80 $\mu\text{g/kg}$
Aroclor-1254	Less than 160 $\mu\text{g/kg}$
Aroclor-1260	Less than 160 $\mu\text{g/kg}$

cc: HWC-Denver
CRC-2

R. E. Stiller (JAB)

General Manager
Title

INVOICE Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141
 Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292
 Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1577 Date Submitted Oct. 28 & Nov. 6, 1985
Requested By Don Butler Date Completed December 11, 1985
Sample Description: Earth - Blended Soil Samples

Analysis	Results
2,4 - D	less than 10 $\mu\text{g/kg}$
2,4 - DB	less than 10 $\mu\text{g/kg}$
2,4,5 - T	less than 1 $\mu\text{g/kg}$
2,4,5 - TP	less than 1 $\mu\text{g/kg}$
Dichlorprop	less than 10 $\mu\text{g/kg}$
MCPA	less than 2000 $\mu\text{g/kg}$
MCPP	less than 2000 $\mu\text{g/kg}$

Comments: P.O. #62246-074

cc: HWC(D)DB
CRC-2

R. C. Stites (JAB) General Manager
Title

Invoice: Harrison Western Corp.

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1578 Date Submitted 10/28/85 & 11/6/85
 Requested By Don Butler Date Completed December 6, 1985
 Sample Description: Wood From Large Raft Pile P.O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 8 $\mu\text{g/kg}$
Beta-BHC	Less than 8 $\mu\text{g/kg}$
Delta-BHC	Less than 8 $\mu\text{g/kg}$
Gamma-BHC (Lindane)	Less than 8 $\mu\text{g/kg}$
Heptachlor	Less than 8 $\mu\text{g/kg}$
Aldrin	25 $\mu\text{g/kg}$
Heptachlor Epoxide	Less than 8 $\mu\text{g/kg}$
Endosulfan I	Less than 8 $\mu\text{g/kg}$
Dieldrin	32 $\mu\text{g/kg}$
4 4-DDE	Less than 16 $\mu\text{g/kg}$
Endrin	Less than 16 $\mu\text{g/kg}$
Endosulfan II	Less than 16 $\mu\text{g/kg}$
4 4-DDD	Less than 16 $\mu\text{g/kg}$
Endosulfan Sulfate	Less than 16 $\mu\text{g/kg}$
4 4-DDT	Less than 16 $\mu\text{g/kg}$
Methoxychlor	Less than 80 $\mu\text{g/kg}$
Endrin Ketone	Less than 16 $\mu\text{g/kg}$
Chlordane	Less than 80 $\mu\text{g/kg}$
Toxaphene	Less than 160 $\mu\text{g/kg}$
Aroclor-1016	Less than 80 $\mu\text{g/kg}$
Aroclor-1221	Less than 80 $\mu\text{g/kg}$
Aroclor-1232	Less than 80 $\mu\text{g/kg}$
Aroclor-1242	Less than 80 $\mu\text{g/kg}$
Aroclor-1248	Less than 80 $\mu\text{g/kg}$
Aroclor-1254	Less than 160 $\mu\text{g/kg}$
Aroclor-1260	Less than 160 $\mu\text{g/kg}$

cc:

HWC-Denver
CRC-2

INVOICE Harrison Western

R. P. Stites (JAB)

General Manager
Title

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141
 Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292
 Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORTCenref Lab No. C85P-1578Date Submitted Oct. 28 & Nov. 6, 1985Requested By Don ButlerDate Completed December 11, 1985Sample Description: Wood from Large Raft Pile

Analysis	Results
2,4 - D	less than 10 $\mu\text{g/kg}$
2,4 - DB	less than 10 $\mu\text{g/kg}$
2,4,5 - T	less than 1 $\mu\text{g/kg}$
2,4,5 - TP	less than 1 $\mu\text{g/kg}$
Dichlorprop	less than 10 $\mu\text{g/kg}$
MCPA	less than 2000 $\mu\text{g/kg}$
MCPP	less than 2000 $\mu\text{g/kg}$

Comments: P.O. #62246-074cc: HWC(D)DB
CRC-2P. E. Stites (JAB)

Title

General Manager

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

Cenref Labs

Century Refining Company

CENREF LABORATORY REPORT

Cenref Lab No. C85P-1579

Date Submitted 10/28/85 & 11/6/85

Requested By Don Butler

Date Completed December 6, 1985

Sample Description: Concrete

P.O. # 62246-074

Analysis	Results
Alpha-BHC	Less than 8 ug/kg
Beta-BHC	Less than 8 ug/kg
Delta-BHC	Less than 8 ug/kg
Gamma-BHC (Lindane)	Less than 8 ug/kg
Heptachlor	Less than 8 ug/kg
Aldrin	75 ug/kg
Heptachlor Epoxide	Less than 8 ug/kg
Endosulfan I	Less than 8 ug/kg
Dieldrin	59 ug/kg
4 4-DDE	Less than 16 ug/kg
Endrin	46 ug/kg
Endosulfan II	Less than 16 ug/kg
4 4-DDD	Less than 16 ug/kg
Endosulfan Sulfate	Less than 16 ug/kg
4 4-DDT	Less than 16 ug/kg
Methoxychlor	Less than 80 ug/kg
Endrin Ketone	Less than 16 ug/kg
Chlordane	Less than 80 ug/kg
Toxaphene	Less than 160 ug/kg
Aroclor-1016	Less than 80 ug/kg
Aroclor-1221	Less than 80 ug/kg
Aroclor-1232	Less than 80 ug/kg
Aroclor-1242	Less than 80 ug/kg
Aroclor-1248	Less than 80 ug/kg
Aroclor-1254	Less than 160 ug/kg
Aroclor-1260	Less than 160 ug/kg

cc: HWC-Denver
CRC-2

R. C. Butler (JAB)

General Manager
Title

INVOICE Harrison Western

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

CENREF LABORATORY REPORTCenref Lab No. C85P-1579Date Submitted Oct. 28 & Nov. 6, 1985Requested By Don ButlerDate Completed December 11, 1985Sample Description: Concrete

Analysis	Results
2,4 - D	less than 10 µg/kg
2,4 - DB	less than 10 µg/kg
2,4,5 - T	less than 1 µg/kg
2,4,5 - TP	less than 1 µg/kg
Dichlorprop	less than 10 µg/kg
MCPA	less than 2000 µg/kg
MCPP	less than 2000 µg/kg

Comments: P.O. #62246-074cc: HWC(D)DB
CRC-2R. C. Butler (TAB) General Manager
Title

Invoice: Harrison Western Corp.

Executive Offices: P.O. Box 1197, Kansas City, Missouri 64141

Mid-Continent Area: R.R. 2, Box 119, Liberal, Kansas 67901 • (316) 624-4292

Rocky Mountain Area: P.O. Box 68, Brighton, Colorado 80601 • (303) 659-0497

APPENDIX 4

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.O. (M.D.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Jay Miller on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed _____

M.O. (M.D.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (85-85-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Earl Reed on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed _____

M.D. (85-85-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (1933-1935)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Robert Stone on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed [Signature] M.D. (1933-1935)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (88-88-88)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Dan Mogensson on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed [Signature] M.D. (88-88-88)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (1985-08-08)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Keith Nye on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed _____

M.D. (1985-08-08)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Ed Kulp with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 11/19/85

Date: _____

Signed [Signature] M.D. (SE=DE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed _____ M.D. (SE=DE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Robert with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (1985-05-05)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Robert Scott on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed [Signature] M.D. (1985-05-05)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Jessie Jennings with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: 10/11/85

Signed [Signature] M.D. (88-88-88)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed _____ M.D. (88-88-88)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.O. (85-8-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Lewis Bentley on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/20/85

Signed [Signature] M.O. (85-8-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (252525)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Jay Cherski on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

date: 11/19/85

Signed _____ M.D. (252525)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (E.E.D.E.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Jerry Graves on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/18

Signed _____ M.D. (E.E.D.E.)

EXIT PHYSICAL

0AAA05-85-8-0008

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined David Foster with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: 10-25-85

Signed B. Calh M.D. (~~000000~~)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed _____ M.D. (~~000000~~)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with parti-
cular reference to paragraph 4 of the project contract and declare him/her
qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste
Disposal Facilities Closure project. If the employee is a female, she is
not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (M.D. 10/1/75)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

MARK ZILK

I certify that I have reexamined Mark Zilk on this
date following _____ months of employment on the Rocky Mountain Arsenal,
Hazardous Waste Disposal Facilities Closure project, and certify that he/she
is free of symptomatology and signs of impairment of health related to such
employment.

Date: 1/11/95

Signed _____ M.D. (M.D. 10/1/75)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.O. (44-3886)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Don Butler on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/15/85

Signed B. Culbourn M.O. (44-3886)
by J. Benda

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Alvin Warden with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (SEE-0000)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Alvin Warden on this date following 1/4 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

*Needs repeat liver
function test
See Holly Anne Foran*

Signed _____ M.D. (SEE-0000)

DAAA05-85-8-0008

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Philip Peters with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

Date: 11/19/88

Signed [Signature] M.D. (or D.O.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed _____ M.D. (or D.O.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (44-38-55)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Patrick Nowlin on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/1/85

Signed [Signature] M.D. (44-38-55)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (1985)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Cecil Vasquez on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10-21-85

Signed [Signature] M.D. (1985)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined TRAVIS WARMOTH with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 11/1/85

Date: _____

Signed

[Signature]

M.O. (85-8-0008)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Travis Warmoth on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11-1-85

Signed

[Signature]

M.O. (85-8-0008)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Bill Tracy with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 11-1-85

Date: 11-1-85

Signed [Signature] M.D. (44-105)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined [Signature] on this date following 0 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/19/85

Signed [Signature] M.D. (44-105)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Rick Jones with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-23-85 10/30/85

Exam Date: 10/23/85

Signed Cameron Sh M.D. (~~10-23-85~~)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Rick Jones on this date following 1/4 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/30/85

Signed Cameron Sh M.D. (~~10-23-85~~)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (SE=0=0=)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Verley Coyle on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/14/85

Signed J. Berds M.D. (SE=0=0=)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Mike Manhe K with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed

[Signature]

M.D. (1985-08-08)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed

M.D. (1985-08-08)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Russell Regan with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (SEE D-55)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Russell Regan on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/28/85

Signed J. M. Bech M.D. (SEE D-55)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Don Paulsen with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-25-85

Date: 10-25-85

Signed _____ M.D. (SEE-0303)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Don Paulsen on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/25/85

Signed _____ M.D. (SEE-0303)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Larry Danielson with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-24-85

Date: 10-24-85

Signed _____ M.D. (SE=SE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Larry Danielson on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/30/85

Signed [Signature] M.D. (SE=SE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Georgy Masog with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10/30/85
Date: _____

Signed [Signature] M.D. (30-30-30)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined _____ on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: _____

Signed _____ M.D. (30-30-30)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Eduin Atchley with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-23-85 ^{CS} 10/30/85

Date: 10-23-85

Signed C Shm M.D. (10-23-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Ed Atchley on this date following 1/2 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/30/85

Signed Conerash mrs M.D. (10-25-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Mike Urbigkeit with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-24-85

Date: 10-24-85

Signed _____ M.D. (SE=DE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Mike Urbigkeit on this date following Two months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/24/85

Signed J. Benk M.D. (SE=DE=SE)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined David Butler with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-24-85

Date: 10-24-85

Signed _____ M.D. (333333)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined David Butler on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/30/85

Signed _____ M.D. (333333)

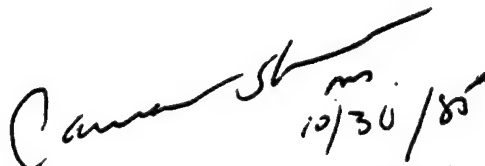
Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined David Soester with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

Date: 10-21-85

Signed


10/30/85

M.D. (or D.O.)

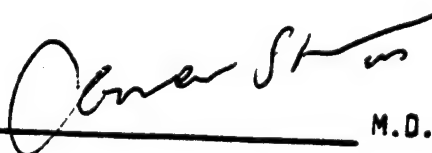
Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Soester, David on this date following 1/2 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date:

10/30/85

Signed



M.D. (or D.O.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Dean Boul with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

Date: 10-23-85

Signed [Signature] M.D. (or D.O.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Dean Boul on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 12/31/85

Signed [Signature] M.D. (or D.O.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Elbert Gentry with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (S.S.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Elbert Gentry on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/28/85

Signed _____ M.D. (S.S.)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined John Dunlap with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-30-85

Date: _____

Signed _____ M.D. (1933-1935)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined John Dunlap on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/30/85

Signed _____ M.D. (1933-1935)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Dennis Clough with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed B. Callum M.D. (1933-1995)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Dennis Tsenlause on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/19/85

Signed B. Callum M.D. (1933-1995)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Richard Wayman with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (Signature)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Richard Wayman on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/25/85

Signed _____ M.D. (Signature)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Michael Nicely with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (333-8-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Michael Nicely on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/25/85

Signed  M.D. (333-8-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined John Bell with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85 10/30/85

Date: 10-28-85

Signed

Conner Skm

M.D. (10-28-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined John Bell on this date following 1/2 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date of exam 10/28/85

Date: 10/30/85

Signed

Conner Skm

M.D. (10-28-85)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined Billy Jennings with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: 10-28-85

Date: 10-28-85

Signed _____ M.D. (32-0-05)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Billy Jennings on this date following _____ months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 10/28/85

Signed [Signature] M.D. (32-0-05)

Closure of Hazardous Waste
Disposal Facility at Basin F
Rocky Mountain Arsenal
Commerce City, Colorado

Certificate of Medical Examination

I certify that I have examined _____ with particular reference to paragraph 4 of the project contract and declare him/her qualified to participate in the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project. If the employee is a female, she is not capable of reproduction.

date signed: _____

Date: _____

Signed _____ M.D. (44-0505)

Closure of Hazardous Waste
Disposal Facility at Basin F
Post-Employment Medical Evaluation
Rocky Mountain Arsenal
Commerce City, Colorado
Medical Certificate

I certify that I have reexamined Rebecca Blanchette on this date following 1 months of employment on the Rocky Mountain Arsenal, Hazardous Waste Disposal Facilities Closure project, and certify that he/she is free of symptomatology and signs of impairment of health related to such employment.

Date: 11/15/85

Signed [Signature] M.D. (44-0505)